A Pilot Intervention To Improve Injection Practices In the Informal Sector In Karachi, Pakistan

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Executive Summary

It is estimated that 8–12 billion injections are given in health care settings globally each year. Of them, 50% are considered to the unsafe. Unsafe injections contribute to the transmission of blood borne pathogens, leading to nearly 80,000 HIV and more than 10 million cases of hepatitis annually. As part of the SIGN Strategic Framework "Innovative Approaches in Promoting Injection Safety" are being, experimented in many developing countries. Pakistan has one of the highest injections frequencies per year (8.5 injections per annum per patient). This has contributed to a high prevalence of HCV antibodies (6.5%) as well as 31% sero prevalence of HBV core antibodies. A pilot intervention was designed in the private sector using the strategy of Interactive Group Discussion (IGDs), first implemented through INRUD in Indonesia. The objective of this pilot intervention was to reduce injection overuse and improve injection practices in the private sector. The pilot intervention was conducted in two urban areas of Karachi, where private HCPs practices in close congested lanes in close proximity. Twenty Health Care Providers (HCPs) were included both from the intervention and control sites. Baseline data was collected from prescribers as well as exit interviews on 900 patients. IGDs were held with patients and providers in the intervention group. Two IGD's, one for male and one for females were held per prescriber. IEC material comprising of posters and small booklets were used to raise patients and prescribe awareness on hazards of injections. Baseline data indicated that nearly 84% patients in both the interventions and control groups had received injection therapy during the current visit. However, after interventions 51% patients in the intervention group had received injections as opposed to 84% in the control group. After IGD's nearly 50.6% patients in the intervention group had started to buy newly packed syringes from the medical store. Nearly 91.9% patients in the intervention and 85% in the control group were given an injection using a new syringe. The rest were injected with a previously used syringe. In the baseline, it was found that 74–77% doctors used new syringes to give injections. However, after the period of intervention in the control group only 67.1% were provided a packed syringe, as compared to 92% in the intervention group (OR 5.42, 95% CI 3.03–9.83). Nearly 83.9% patients in the intervention group mentioned that the packed syringe was opened in front of them, as compared to 53.5% in control group, (OR 4.53 95% CI 3.11–6.61).

In the Interactive Group Discussions (IGDs) patients mentioned that prescribers do not inform patients about other alternate sources of treatment including oral medications. Early recovery was the key factor in injection overuse. Most patients especially labourers and daily wagers, demand early relief from symptoms. This point is manipulated by prescribers who advocate injection therapy as the only means of treatment for early recovery. Most patients mentioned that prescribers have made them dependent upon injections. The financial benefit of injection therapy to prescribers was discussed by many patients. Through many prescribers mentioned injection demand by patients, these misconceptions were clarified in a healthy discussion. As a result after IGD's only 36% patients linked treatment satisfaction with injection therapy in the intervention group as opposed to 85% in the control group. Patients expressed ignorance about hazards of injections and could not link unsafe injections with HIV/AIDs or hepatitis. They mentioned that prescribers do not spend time counseling patients or give them any awareness or health education. Interactive Group Discussions (IGDs) provided a platform for prescribers and patients to exchange views on injections hazards and an opportunity for the prescriber to increase awareness in patients. Patients trust their own physicians much more than another source. The behavioral change seen in patients after IGD's can be attributed to health education imparted by the patients own trusted HCPs, as well as an open discussion to clear the misconceptions both in the minds of patients and prescribers as to who demands injections. Before intervention, sharp waste disposal comprised of simply throwing away needles and syringes in the waste bin (77%) or removing needles (5%). Scattered needles and syringes were seen in 25% HCP Clinics. Nearly all HCPs in the intervention group had started using needle cutters after IGDs.

IGDs, as an intervention tool to reduce the practices of unnecessary injections was first introduced in Indonesia through INRUD and proved to be an effective intervention tool. However, it is for the first time that IGDs were experimented in the private sector. The private health sector faces the challenge of patient's satisfaction to ensure future clientele. Financial implications play an important role in prescribing injections. Patients accessing the private sector expect prompt recovery, as they pay to get treated. In Pakistan, 80% of the population utilizes the private health sector. Hence, it is important to target the private health sector. The success of this pilot intervention demonstrates the effectiveness of IGDs in the reducing unnecessary injection in the private sector. The

next steps should be to scale up these activities on a national scale. The mass media can also be utilized to achieve this end.

Introduction

It is estimated that 8-12 billions injections are given in health care settings globally each year (1,2). Nearly 50% of the injections in the developing world are considered to be unsafe (3). Unsafe injections contribute to HIV infections as well as substantially to the risk of developing hepatitis B and C leading to its associated complications and mortality (4). It is estimated that unsafe injections may infect more than 80,000 people a year with HIV and more than 10 million people with hepatitis virus. They are said to collectively cause over 1.3 millions premature deaths a year in subsequent birth cohorts (5). Routine immunization accounts for approximately 750 million injections per year-less than one tenth of the global total. For each vaccination injection, nine therapeutic injections are given (6). It has been seen through various studies that 70 % of curative injections are unnecessary (3). Many of these injections are given in the private sector where sterilization procedures are generally not practiced. Patients believe that injections give them strength and injectable medicines are more stronger than oral medications. Health Care Providers (HCPs) frequently use injections to treat serious and life threatening infections, hence patients consider injection therapy to be more powerful, and perceive that their illness has been taken seriously by the HCP. Health care providers (HCPs) in the private sector, encourage injection therapy for financial benefits as they charge more from the patients. Hence, injections are given for minor illnesses like acute respiratory infections or relief of pain. A study from India showed that 96% of all injections given by the private sectors were either antibiotics, vitamin or analgesics (8). As the medicine "runs in the blood" it produces a feeling of satisfaction in the patient. This is specially true in the developing countries where injections frequency varies from 8-10 injections per person per year. Globally 3-4 injections per person per year are administered (9). One of the highest injection frequency are seen chiefly in Pakistan (8.5), Ecuador (7.3) (3). In all developing countries both in the public and private sectors, disposable syringes are used to deliver injections. Of all the injections given in developing countries, only 5% are said to be used for immunization: 95% are given for curative purposes and only 30% of these are said to be "Safe Injections" (3). In some countries, four out of five disposable syringes are reused. There is no concept of sterilization or a sharp waste disposal system. According

to a review of data on the frequency of unsafe injections, based on WHO country report and published studies, it is estimated that in developing countries, one syringe was routinely used for three to ten patients before being discarded (3). Thus blood borne infections are routinely transmitted from patient to patient sharing of needles and syringes.

Recent studies in Pakistan have shown a very high frequency of injection per person. In a recent study from Hafizabad, it was shown that individuals infected with HCV were 8.2 times more likely to receive 2-5 injections per year in the previous 5 years and a marked relationship was seen in HCV infection and previous exposure to injections (10). Similar results were obtained from Karachi, whereby nearly 73% patients reported receiving more than 10 injections in a year, and those who reported receiving more injections in the recent years, were more likely to be infected with HCV. A study on the patients frequenting HCPs, nearly 44% had antibodies against HCV and 19% against HBV core antigen (12). A case study from Rawalpindi reported 29% of patients with chronic liver disease and 8% with hepatocellular carcinoma to be infected with hepatitis C virus (13). Similarly, it was found in 2003 by Bukhtiari et al, from Rawalpindi Army Medical College that 68% patients with cirrhosis and 42% with hepatocellular carcinoma were anti HCV positive (14).

In view of the high prevalence of hepatitis B and C in Pakistan and its major consequences, effective health interventions are needed, especially in the private sector, to reduce unnecessary injections and promote safe injections practices. Most heath care providers (HCPs) overprescribe injections, under the assumption that patients prefer injections. Though some patients may prefer injections, this trend is generally over estimated by prescribers. These misconceptions can be cleared if an open dialogue is held between prescribers and patients in the form of Interactive Group Discussions. The strategy of Interactive Group Discussions (IGDs) have been used as an effective intervention strategy through the INRUD, International Network For Rational Use of Drugs, in Indonesia (15). A pilot project on reducing injection overuse in the private sector in Karachi, Pakistan was initiated using Interactive

Group Discussions (IGDs) to clarify misunderstandings pertaining to overuse and demand for unnecessary injections. The objective of the pilot intervention was to

- Reduce injection overuse and improve injection practices in the private sector of Karachi.
- Identify intervention strategies that could be scaled up nationally for safe and appropriate use of injections in the informal private sectors.

Methodology

This was a pilot intervention study conducted in the informal sector in the densely populated urban area of Karachi city. A control area was also chosen which was homogeneously similar to the intervention area. Both the intervention and control area were similar with respect to sociocultural class, economics status etc. The intervention area was located in the heart of the city known as (Saddar), with the control area also located within the heart of the city but at a distance of 5 kms away from the intervention area and known as (Soldier Bazar). In both these areas, HCPs practiced in small congested lanes in close proximity to each other. Most of the HCPs dispensed medicines through their own clinic, however some prescribed patented medicines also from medical stores located close to the clinics. Huge signboards advertising the HCPs were displayed outside the clinics. For a common man it is difficult to differentiate a qualified doctor from a nonqualified doctor.

Before the onset of intervention, a pre-assessment survey was done with the help of injection safety assessment tools developed by WHO. A pre-structured questionnaire was designed and pre-tested. Appropriate changes were made in the questionnaire and after field-testing the questionnaire was translated in the local language Urdu. The questionnaire comprised of some closed-ended questions, as well as certain open-ended questions. Probing was done to elicit the correct response from the patient. Open-ended questions were recorded in the patient's own words and then reported. A group of four interviewers underwent intense training in data collection and assessment methods. The data was thoroughly reviewed with the interviewers to ensure that all the question were answered and that they clearly understood what was required from them. Data collection was standardized to ensure no observer bias. Exit interviews using these questionnaires were administered to every fourth patient leaving the clinic of the HCPs. Post intervention, the same questionnaire was administered to the patient in both the intervention and control group, again in form of the exit interviews.

Interactive Group Discussions

Interactive Group Discussions (IGD) is an effective intervention strategy used to advocate safe injection practices. The IGD strategy has previously been used in Indonesia, recommended by the International Network for Rational Use of Drugs (INRUD) with highly successful results (15). The IGDs were held with prescribers interacting with a group of patients.

The objectives of the IGD's sessions with injection prescribers and providers were:

1) To understand prescribers therapeutic rationale and other motives for prescribing injections.

2) To explore prescribers and providers understanding of overuse and safety issues relating to injections.

3) To develop an exchange of views on injection practices whereby patients and prescribers can clarify these misunderstandings and are effective in reducing injection overuse.

4) Through IGDs prevent unnecessary injections and lower the risk of bloodborne infections including hepatitis and HIV/AIDs.

Separate IGDs were held for males and females keeping in perspective the socio-cultural norms. These IGDs were held in the clinic of the HCPs immediately after the clinic's time, in which generally 10–12 patients participated. The exchange of views between patients and prescribers on injections was conducted with the assistance of a facilitator. The main job of the facilitator was to start the discussion and provide inputs whenever required to ensure smooth running of the discussion. Initially, the HCPs expressed a lot of apprehensions about direct interaction with patients on such sensitive issues. However, after lots of convincing and motivation, the HCPs agreed to interact with the patients and after the initial hesitation, the HCPs developed comfort interacting with the patients. In our study the facilitator was the research officer, a public health specialist who had received training in Interpersonal Communication (IPC). The

facilitator was assisted by a moderator and a rapporteur. In case of female IGDs, the female health worker was also involved to make the female patients more comfortable. The main idea behind interactive group discussion (IGD) was to have an open discussion between the prescribers and patients to assess their perceptions about the prevailing injections practices in the population.

At the beginning of the IGD, the facilitator introduced himself and the participants, and briefly introduced the topic of safe injections. The aims and objective of IGDs were introduced and the discussion was initiated by discussing with the participants various illnesses for which they consult the health care provider (HCPs) and whether they receive injection or oral therapy. The prescribers would then start discussing the hazards of unsafe injection. The facilitator then slowly geared towards the topic why patients demand injections and this would start interactive discussion between the prescribers and the patients, as to the reasons behind increased overuse of injections, the role of prescribers, unnecessary injections and the injection demand by patients. The facilitator would moderate to ensure the prescribers does not go on the defensive and there is no hostility between patients and the HCPs. The HCP was encouraged to use this opportunity to educate patients about injection hazards. Similarly, the misconceptions in the minds of patients, specially pertaining to the role of HCPs and over prescription of injections was discussed in detail. An atmosphere of confrontations was avoided. Incase the HCPs would become overbearing, efforts were made to tone down the prescribers. Incase any patient became overreactive and his attitude towards the prescribers became aggressive, the discussion was gradually moved away from him to other participants. In view of the sensitivity of the situation, an atmosphere of confrontation was avoided. One of the important controversies was the effectiveness of oral medication versus injectable therapy and the prescriber was asked to clarify the misconception in the minds of patients, that injections were more effective then oral injection therapy. The issue of extra financial benefit to the HCPs was a very delicate issue and handled with extra care. The IGDs lasted for 45 minutes to an hour, at the end of which refreshments were served to the participants.

Focus Group

As part of the qualitative assessment, focus group discussions on injection practices were conducted to identify people's perceptions of the rationale behind therapeutic injections, as well as to gain an understanding of the problem of unnecessary and unsafe injections in a specific context. Such understanding is crucial to frame future education and communication interventions, and to adapt medical knowledge and practices to identify needs. Focus groups also helped us to understand and to explore the socio-cultural meanings of injections. The focus group was conducted on patients, separately for male and females, who were waiting at the health facility to be treated. Each focus group comprised of 10–12 patients and were conducted in the health facility.

The objectives of the focus group sessions with communities and patients are:

1) To explore the socio-cultural meaning of injections (including identifying local terms for "injection" and for the various injection providers).

2) To identify people's perceptions of the therapeutic rationale behind the injections.

3) To understand the direct and indirect costs of injections.

4) To understand people's perceptions of injection safety.

The focus group was conducted by a facilitator accompanied by a moderator and rapporteur. At the beginning of the focus group, the facilitator, set the stage by talking about hepatitis and HIV/AIDs and probing the participants knowledge about these diseases and their modes of spread. This was followed by the role of unnecessary and unsafe injections in spread of these diseases. Discussions were directed towards why patients specifically choose injections as the preferred mode of treatment and their awareness about other alternate modes of treatment. The socio-cultural aspects behind injection preference was also explored and probing was done to elicit the role of HCPs promoting injection overuse. The awareness of the patients about the disadvantages of injections was discussed. The moderator directed the discussion to specific topics and

intervened whenever deemed necessary to keep the discussion on track. The rapporteur duly recorded the proceedings.

IEC material was also developed promoting injection safety. This was in the form of posters and pamphlets. The IEC material promoted the following messages.

- Avoid unnecessary injections
- Prevent reuse of syringes.
- Use of new and packed syringes.
- Hazards of unsafe injections.
- Health education messages on hepatitis and HIV/AIDs.
- Sharp disposal waste.

Pamphlets in the local language, with pictorial messages were distributed amongst the patients. Special pamphlets with more technical information, (in English) were developed for HCPs. The IEC material was distributed in IGDs, focus groups as well as to the patients attending the HCPs clinics.

Results

Exit Interviews of Patients

Data was collected from the intervention and control groups at the beginning of the study to assess the baseline knowledge of the patients and general practitioners. Five hundred patients in the intervention and four hundred in the control group, were interviewed. In addition, twenty five HCPs in the intervention area and twenty in the control group were interviewed. After six months of intervention, data was again collected from nine hundred patients (intervention: 500, control: 400). Similarly, post intervention knowledge was gauged from 20 HCPs each in the intervention and control area.

The majority of the patients interviewed were between 20 to 40 years of age, both in the intervention and control group (20 to 30 years: 48%, 30 to 40 years: 34 %). Of them, nearly 70% were married while the rest, nearly 28% were single. Since socio – cultural practices depend upon the ethnic diversity, we also tried to gauge the ethnic background of the patients in the two groups. Nearly 40 to 47% patients were Mohajirs and a quarter were Punjabis (Intervention: 21.6%, Control: 29.5%). The education pattern revealed that nearly 38% had studied up to high school, while 14% had attended early college. In the intervention group nearly 43% patients had an average family income of US$ 35 to 70, while 35% had an income of US$ 70 to 86. In the control group 38% patient had an income of US$ 35 to 70, while 41% had an income of US$ 70 to 86. The mean income of patients in both the groups was US$ 47. (Table 1)

Table 1: Education Qualification and Income of Patients.

	Intervention (n=500)	Control (n=400)
Qualification	**%**	**%**
Uneducated	14.8	8.5
Primary	4.8	7.0
Secondary	7.4	11.5
Middle	14.8	19.0
Metric / High School	37.4	38.2
Intermediate	17.8	14.0
Graduate	2.8	1.8
Post Graduate	0.2	0.0
Income (US$)		
35	14.25	13.3
35 to 70	43.3	38.8
70 to 86	35.8	41.05
86 to 138	5.8	3.2
138 to 172	0.8	1.8
Above 172	0.0	1.8

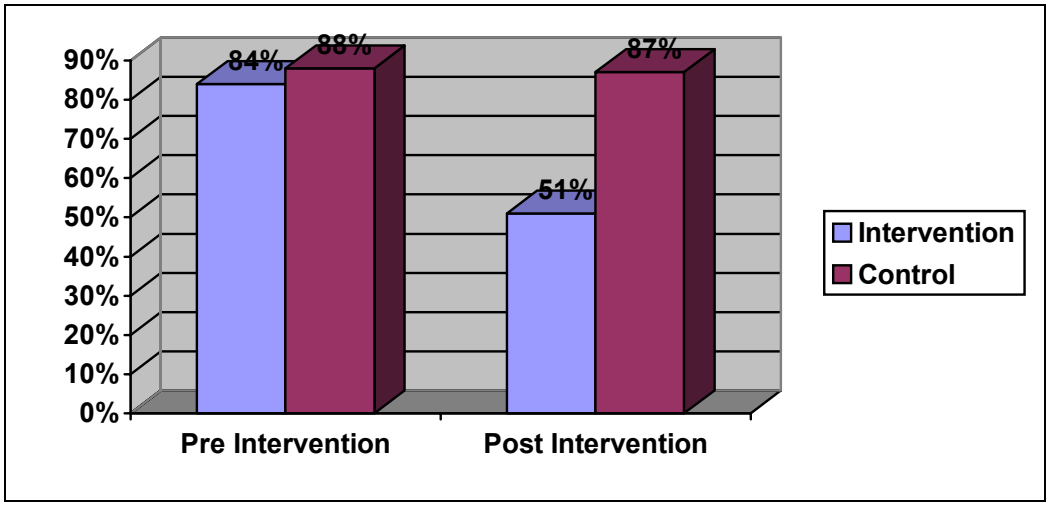
The majority of the male patients were either store keepers (32.7%) or were involved in their own business (20.6%). Others included professionals, clerks, students etc. 86.2% females were housewives, while others included teachers & students. (Table 2)

Table 2: Occupation of Patients.

	Male	Female
Occupation	**%**	**%**
Unemployed	7.00	0.00
Officer	4.80	0.90
Store Keeper	32.70	0.20
Professional	7.50	1.60
Teacher	1.60	2.30
Clerk	2.60	0.20
Driver	4.10	0.00
Daily wager	2.60	0.00
Housewife	0.00	86.20
Watchman	2.00	0.00
Labourers	5.70	0.20
Student	8.10	7.20
Home industry	0.70	0.50
Business	20.60	0.70

The majority of the patients from whom information was obtained were regular patients of the respective HCPs (88–90%) both in the intervention and control groups. Nearly 66 to 70% patients, both in the control and intervention group had been regular patients of the HCPs from past six month to atleast two years. As mentioned earlier, the patient population interviewed represented 25% of the patient load of HCP. Every fourth patient exiting the HCPs Clinic was interviewed. It was unlikely that the same patient was interviewed in the pre and post intervention survey. On being asked, if this was the second or third visit of the patient, 56% in the intervention group and 61.3% in the control group answered in affirmative. In the baseline survey it, was observed that 76.6% patients in the intervention group had received injections in the previous visits, while 84% had received injections in the present visit. Similar figures were obtained in the control group whereby 83% had received injections in the previous visit and 88% had received in the present visit.

Figure 1: Injection Therapy During Present Visit.



chi – square = 245.79 p value < .0001

However, in the post intervention survey, when the patients were asked whether they had received injection during the current visit it was found that 87% patients in the control group had received injections as compared to 51% in the intervention group ($p<.0001$) Before health education 84% patients were given injection in the intervention group.

Both in the intervention and control groups, when the patient was asked if the doctor himself advised injection or did the patient demand the injection, it was found that 93–98% patients said that the doctor advised the injection. This response was given before health education was imparted and even after health education was given. According to 38% patients in the intervention and 28% in the control group, the doctor gave no reason for advising the injection as a mode of treatment. However, 38% patients in the control and 28% in the intervention group said that the doctor cited fever as the reason for giving the injection. Of the patients who themselves asked for the injection, 22.9% in the intervention and 42.9% in the control group said that they demanded the injections because injection were better than oral medication. Only 4.6% patients in the intervention and 2.5% in the control group asked the doctor for other alternate means of treatment than injections.

We tried to elicit expenses incurred by the patients. The average doctor's fee in the intervention group was US$ 0.82c while it was US$ 0.89c in the control group. Expenses other than the doctor fee on an average were US$ 0.84c in the intervention and US$ 1.4 in the control group.

The patients were asked the conditions for which injection should be administered. The common conditions reported included fever (intervention: 61.2%, control: 83%), cold (intervention: 35.4%, control: 35.7%) weakness (intervention: 21%, control: 20%). Other conditions reported by patient included Diarrhoea, jaundice, infection etc. Interestingly very few patients (3–5%) mentioned vomiting. (Table 3)

Table 3: Patient's Perspective on Conditions for which Injection Therapy should be given.

	Intervention (n=500)		Control (n=400)	
Condition	**%**	**n**	**%**	**n**
Fever	61.2	(306)	83.5	(335)
Vomiting	5.8	(29)	3.25	(13)
Diarrhoea	25.4	(127)	15.75	(63)
Cold	25.4	(127)	35.7	(143)
Cough	23.0	115)	25.75	(103)
Pain	39.0	(198)	44.25	(177)
Weakness	21.0	(105)	20.25	(81)
High blood pressure	3.2	(16)	6.5	(26)
Urinary retention	0.2	(1)	0.5	(2)
Colic	0.2	(1)	0.0	(0)
Injury	6.4	(32)	2.75	(11)
Wound	6.4	(32)	4.0	(16)
Flu	0.2	(1)	2.0	(8)
Infection	4.2	(21)	4.55	(18)
Headache	7.0	(35)	14.75	(59)
Body pain	16.0	(80)	12.75	(51)
Joint pain	3.6	(18)	8.5	(34)
Measles	10.2	(51)	6.5	(26)
Kidney pain	2.0	(10)	2.75	(11)
Abdominal pain	1.2	(6)	6.5	(26)
Asthma	0.2	(1)	10.5	(42)
Diabetes	8.4	(42)	5.25	(21)
Runny nose	2.0	(10)	22.25	(89)
Jaundice	11.6	(58)	13.0	(52)

Amongst the patients who had received injections it was found that in the baseline, both in the intervention and control group nearly 16-22% patients were provided syringes by the doctor, and only 7–14% patients purchased the syringe themselves from the medical store. However, after advocacy in the intervention group, nearly 50% patients themselves purchased the syringe from the medical store in the intervention group, while only 6.3% patients in the control group purchased the syringe from the medical store. In the control group the dispenser provided the syringe to 69% patients. (Table 4).

Table 4: Provider of Syringe to the Patient.

	Before Advocacy				After Advocacy			
	Intervention		Control		Intervention		Control	
	%	n	%	n	%	n	%	n
Doctor	16.6	(83)	22.8	(91)	18.8	(94)	22.8	(91)
Dispenser	68.8	(344)	71.0	(284)	30.6	(153)	69.0	(276)
Medical store	14.6	(73)	6.3	(25)	50.6	(253)	8.3	(33)

chi – square = 385.87 p value < .0001

Nearly 91.9% patients in the intervention and 85% in the control group were given an injection using a new syringe. The rest were injected with a previously used syringe. In the baseline, it was found that 74–77% doctors used new syringes to give injections. However, after the period of intervention in the control group only 67.1% were provided a packed syringe, as compared to 92% in the intervention group (OR 5.42, 95% CI 3.03 – 9.83). Nearly 83.9% patients in the intervention group mentioned that the packed syringe was opened in front of them, as compared to 53.5% in control group, (OR 4.53 95% CI 3.11–6.61). Around 44.4% in the control group and 11% in the intervention group said that the dispenser mentioned that the syringe was packed, but did not open it in front of the patient. (Table 5)

Table 5: Use of New or Packed Syringe by the Patient.

	Intervention (n=500)		Control (n=400)		OR	95% Confidence Interval (CI)
	%	n	%	n		
New syringe used	83.0	(205)	85.3	(313)	0.84	0.53-1.34
Syringe used was packed	91.7	(188)	67.1	(210)	5.42	3.03-9.83
Packed syringe open in front of patient	83.9	(370)	53.5	(13.0)	4.53	3.11-6.61

At the baseline in the majority of the cases (intervention: 76%, control: 86%), the injection was administered by the dispenser. However, in the intervention group the doctor administered the injection to 11.2% patients as compared to 4.5% in the control group. Before giving the injection nearly 90–99% of health care providers cleaned the sites of injection with spirit, both in the intervention and control group. The new and packed syringe was used by 83% in the intervention group as compared to 53.5% of the health care providers in the control group. (Table 6)

Table 6: Precautions Taken Before Administering the Injection.

	Intervention (n=500)		Control (n=400)	
Precautions	%	n	%	n
No precautions	7.2%	(36)	0.0%	(0)
Clean with spirit	90.4%	(452)	99.8%	(399)
Used new and packed syringes	83.9%	(419)	53.5%	(214)
Don't know	0.4%	(2)	0.3%	(1)

It was found in the baseline survey, that nearly 70-78% of the patients said that the doctor threw away the syringe in the waste after administrating the injection. The needle cutter was used by only 2.6% HCPs in the intervention and 3.30% in the control.

Through, after health education in the post intervention survey patients in the intervention group reported that the HCP used the needle cutter in 72.6% cases as compared to 6.3% in the control group. The syringe and needle was thrown in the waste bin by 24.6% doctors in the intervention group as opposed to 72.60% in the control group. (Table 7)

Table 7: Disposal of Syringes and Needle by Health Care Provider (HCPs).

	Before Advocacy				After Advocacy			
Disposal of Syringe	**Intervention**		**Control**		**Intervention**		**Control**	
	%	**n**	**%**	**n**	**%**	**n**	**%**	**n**
Cut with needle cutter	2.60	(13)	3.30	(13)	72.60	(363)	6.30	(25)
Thrown in waste	77.00	(385)	78.00	(312)	24.60	(123)	76.80	(307)
Needle removed	0.40	(2)	0.50	(2)	0.60	(3)	5.50	(22)
Others	19.80	(99)	18.00	(72)	2.00	(10)	10.80	(43)
None	0.20	(1)	0.30	(1)	0.20	(1)	0.80	(3)

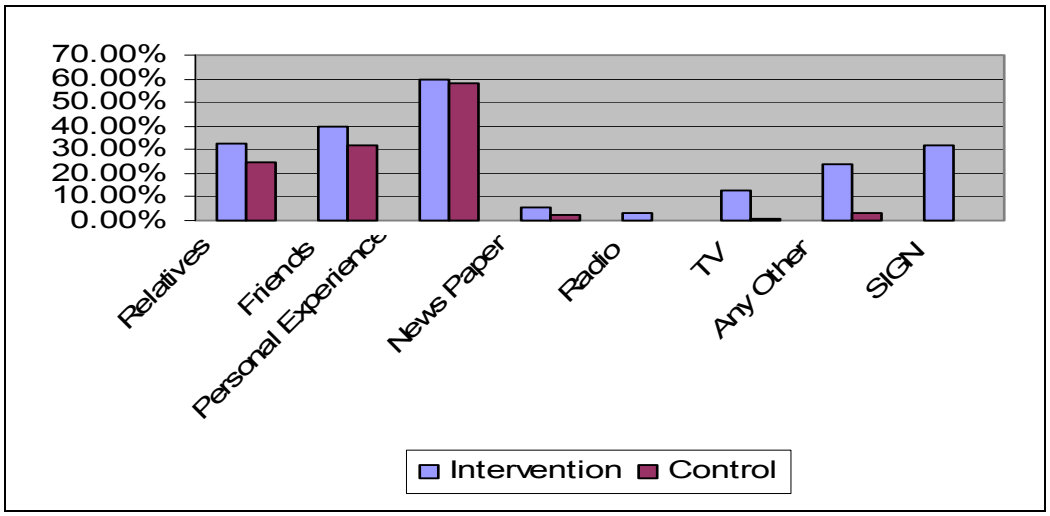
The majority of the patients cited early recovery as a great advantage of injection therapy. In the baseline survey nearly 90% patients (intervention: 91%, control: 97%) and 96% in the control group said that early recovery was a big advantage of syringes. After health education in the post intervention group 74% patients mentioned early recovery as a reason for preferred injection use. Pain, adverse reaction, swelling and abscess were generally reasons given by patients as being disadvantages of injection therapy. Adverse reaction was the most common sideeffect expressed by patients (pre intervention and control 23–24%) at baseline and 15.2% in the post intervention group. Interestingly, in the baseline in both the groups and in the control group, post intervention, none of the patients mentioned hepatitis or HIV/AIDs as a disadvantage of injection therapy. Through, in the intervention group after advocacy 19.8% mentioned hepatitis and 16% talked about HIV/AIDs as disadvantages of injection therapy. (Table 8)

Table 8: Patient's Perception of Advantages and Disadvantages of Injections.

	Before Advocacy				After Advocacy			
Advantages of Injection	**Intervention**		**Control**		**Intervention**		**Control**	
	%	**n**	**%**	**n**	**%**	**n**	**%**	**n**
Early recovery	91.0	(458)	97.5	(390)	74.4	(372)	96.2	(385)
Less expensive	0.80	(4)	0.75	(3)	0.8	(4)	1.75	(7)
Temporary recovery	1.00	(5)	0.0	(0)	1.4	(7)	0.25	(1)
Feel less anxiety	4.20	(21)	0.75	(3)	4.4	(22)	0.0	(0)
Rapidly effective	2.60	(13)	1.00	(4)	3.4	(17)	2.5	(10)
Don't know	4.2	(21)	2.50	(10)	17.0	(83)	3.25	(12)
Disadvantages of Injection								
Pain	3.2	(16)	1.7	(7)	8.0	(40)	5.5	(22)
Adverse reaction	23.6	(118)	24.2	(97)	15.2	(76)	22.8	(91)
Swelling	13.0	(65)	10.0	(40)	24.8	(124)	18.5	(74)
Abscess	8.6	(43)	11.2	(45)	13.8	(69)	10.8	(43)
Fever	6.2	(31)	3.2	(13)	0.0	(0)	0.0	(0)
Scars	0.0	(0)	0.5	(2)	0.8	(4)	2.5	(10)
None	26.6	(133)	15.0	(60)	0.0	(0)	17.3	(69)
Hepatitis	0.0	(0)	0.0	(0)	19.8	(99)	0.0	(0)
HIV/AIDs	0.0	(0)	0.0	(0)	16.0	(80)	0.0	(0)
Don't know	29.8	(149)	41.7	(167)	1.6	(8)	22.8	(91)

The patients had received this information from various sources. Relatives (24–30%), and friends (30–39%) provided the information to 1/3 patients. Personal experience accounted for nearly 60% of the patients perception about injections. Interestingly media (newspaper; 5%, radio; 3%, television; 12%) were not instrumental in advocating the message of safe injection. Nearly 32% in the intervention group mentioned that they had received this information from the SIGN Project Team.

Figure 2: Source of Information Regarding Injection Therapy.

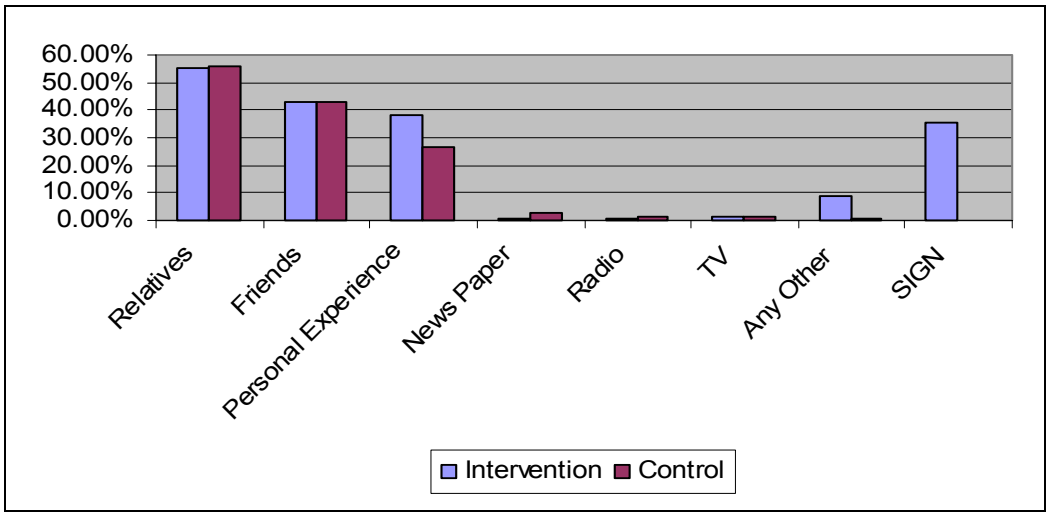


In the baseline and control group 75–80% of patients had received I/V drips for treatment of various conditions. However, in the post intervention, 43% patients had been given a I/V drip. They had received a I/V drip for various reasons including weakness (46%), diarrhoea (13.3%) or low blood pressure (5.9%). On assessing patient's knowledge regarding I/V drips, it was seen that most of the patients said that I/V drips should be given in cases of diarrhoea, vomiting and generalized weakness. Jaundice was also cited by most patients as a reason for giving I/V drips. (Table 9)

Table 9: Conditions for which Patient was given the Intravenous Drip and Patients Perception Regarding Conditions For Which I/V Drip should be Given.

	Intervention (n=500)		Control (n=400)	
Condition for I/V Drips	**%**	**n**	**%**	**n**
Delivery	26.26	(57)	46.5	(101)
Weakness	46.08	(100)	47.0	(102)
Diarrhoea	13.36	(29)	31.3	(68)
Vomiting	5.52	(12)	7.37	(16)
Jaundice	6.91	(15)	12.4	(27)
Urinary retention	0.0	(0)	0.46	(1)
Low blood pressure	5.99	(13)	10.1	(22)
Diarrhoea	35.8	(139)	34.2	(137)
Vomiting	13.2	(66)	13.7	(55)
Weakness	53.8	(269)	53.0	(212)
Jaundice	14.0	(70)	17.0	(68)
Burning maturation	0.0	(0)	0.25	(1)
Urinary retention	0.2	(1)	0.0	(0)
Anemia	7.6	(38)	4.5	(18)
Delivery	8.4	(42)	19.5	(78)
Dehydration	1.2	(6)	4.0	(16)

Figure 3: Source of Information Regarding Drips.



Patients had received information about I/V drips from doctors in 25% cases. Friends (43%), relatives (55%) and personal experience (26–37%) were the main sources for this information. Media (television, radio and news papers) contributed a negligible source (1–2%). In the intervention area, the SIGN Project Team was responsible in providing the information to 35% patients. Most of the patients (intervention: 66% control: 82%) felt that drips were important means of providing energy in condition leading to weakness. Quite a few patients (11–18%) said that I/V drips are useful in treating dehydration. Patients in the control group were more supportive of I/V drips Only twenty one percent patients in the control group said that I/V drips have no disadvantages. Swelling was indicated by both the control and intervention patients in nearly 20% cases. Some 25–28% patients said that adverse reaction occurs with drips. Hepatitis (30.8%) and HIV/AIDs (22.6%) was indicated by patients only in the intervention and not in the control group. (Table 10)

Table 10: Patient's Perception about Advantages and Disadvantage of I/V Drips.

	Before Advocacy				After Advocacy			
Advantages of I/V Drips	**Intervention**		**Control**		**Intervention**		**Control**	
	%	**n**	**%**	**n**	**%**	**n**	**%**	**n**
Provides Energy	75.6	(378)	80.5	(322)	68.0	(340)	82.5	(330)
Stops diarrhoea	0.6	(3)	0.0	(0)	0.0	(0)	1.0	(4)
Gets early relief	6.2	(31)	3.0	(12)	7.4	(37)	8.5	(34)
Dehydration	17.8	(89)	11.0	(44)	18.8	(94)	11.0	(44)
Don't know	8.4	(42)	7.7	(31)	11.8	(59)	6.0	(24)
Disadvantages of I/V Drips								
No disadvantage	21.8	(109)	14.5	(58)	2.6	(13)	21.2	(85)
Pain	1.2	(6)	0.7	(3)	6.0	(30)	5.75	(23)
Swelling	12.4	(62)	11.2	(45)	20.2	(101)	21.0	(84)
Fever	1.2	(6)	0.0	(0)	0.6	(3)	0.5	(2)
Shivering	1.0	(1)	0.0	(0)	0.6	(3)	0.25	(1)
Excessive urination	1.0	(1)	0.0	(0)	0.2	(1)	0.0	(0)
Waste of time	0.0	(0)	0.7	(3)	6.6	(33)	0.0	(0)
Adverse reaction	21.0	(105)	20.5	(82)	28.8	(144)	25.0	(100)
Hepatitis	0.0	(0)	0.0	(0)	30.8	(154)	0.0	(0)
HIV/AIDs	0.0	(0)	0.0	(0)	22.6	(113)	0.0	(0)
Don't know	43.4	(217)	53.0	(212)	11.2	(56)	29.7	(119)

As shown previously, relatives (47%), friends (46%) and personal experience (35%) were chiefly responsible for providing information to patients about I/V drips. Media including (radio, television and news papers) played a very small role in providing this information. In the intervention group, the SIGN project team provided this information to 34% of patients. (Table 11)

Table 11: Source of Information about Drips.

	Before Advocacy				After Advocacy			
Source of Information	**Intervention**		**Control**		**Intervention**		**Control**	
	%	**n**	**%**	**n**	**%**	**n**	**%**	**n**
Doctors	33.0	(165)	41.0	(164)	21.4	(107)	21.5	(86)
Relatives	24.8	(124)	29.0	(116)	47.4	(237)	49.5	(198)
Friends	13.6	(68)	12.8	(51)	42.0	(210)	46.0	(184)
Personal experience	53.8	(269)	48.3	(193)	35.6	(178)	31.0	(124)
News papers	3.0	(15)	1.3	(5)	4.6	(23)	1.8	(7)
Radio	0.2	(1)	0.3	(1)	0.2	(1)	0.0	(0)
Television	1.8	(9)	0.3	(1)	2.0	(10)	0.5	(2)
Any other	0.0	(0)	0.5	(2)	12.2	(61)	0.8	(3)
SIGN Project Team	0.0	(0)	0.0	(0)	34.2	(171)	0.0	(0)

Patient's knowledge about various forms of hepatitis and HIV/AIDs was gauged. In the baseline, 24–30% patients in both groups had heard about hepatitis A. However, post advocacy 54.8% of patients in the intervention group mentioned that they had heard about hepatitis A. A similar picture was obtained concerning hepatitis B, whereby 25–30 % patients at baseline had heard of hepatitis B, which increased to 50.6% in the post intervention group. Information about hepatitis C showed a somewhat similar trend, whereby knowledge increased from 25 to nearly 50% post intervention. Patients were

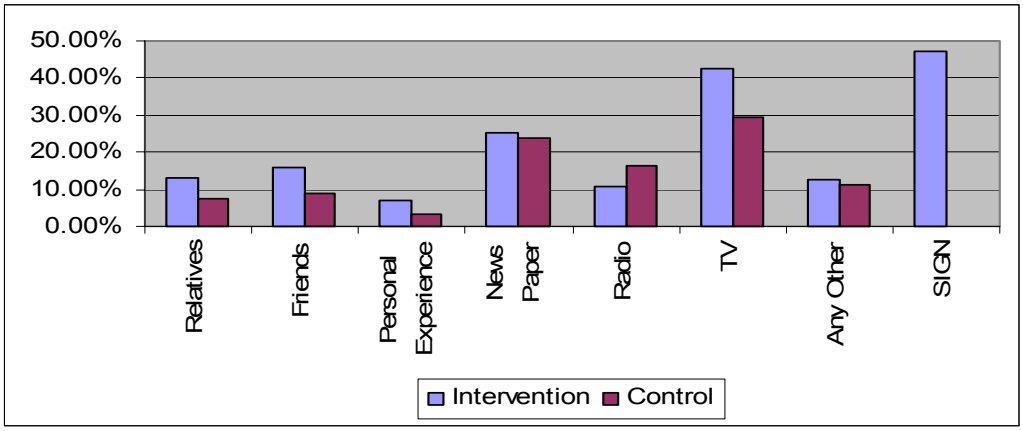
more aware about HIV/AIDs as opposed to hepatitis as seen in Table 15, whereby at baseline in both groups and in the control group, post intervention nearly half the patients had heard or read about HIV/AIDs. This knowledge increased to 76.8% patients after advocacy. (Table 12)

Table 12: Patient's knowledge about Hepatitis A, B, C and HIV/AIDs.

	Before Advocacy				After Advocacy				
	Intervention		Control		Intervention		Control		P value
	%	n	%	n	%	n	%	n	
Hepatitis A	24.2	(121)	30.5	(122)	54.8	(274)	23.0	(92)	P<.0001
Hepatitis B	25.6	(128)	31.3	(125)	50.8	(254)	17.8	(71)	P<.0001
Hepatitis C	23.2	(116)	32.8	(131)	50.8	(254)	14.0	(56)	P<.0001
HIV/AIDs	47.4	(237)	50.5	(202)	76.8	(384)	47.8	(191)	P<.0001

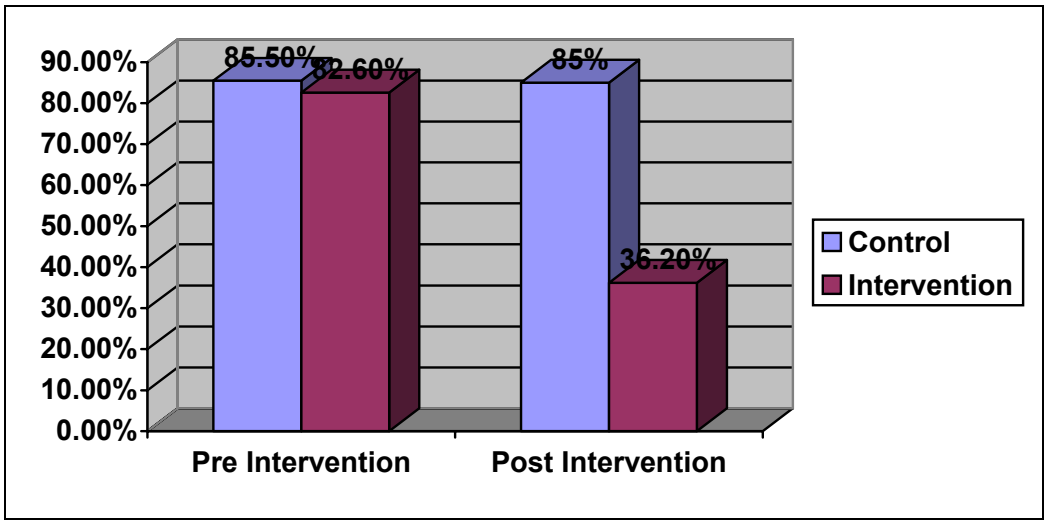
In the baseline and control group, nearly 29% patients said that the mode of transmission of these diseases was unethical sexual practices. Only 7–10% patients at baseline in both the groups mentioned reuse of the syringes as a contributing factor towards HIV/AIDs and hepatitis. Unsafe blood transfusion was mentioned by 17-26% patients. However, post intervention patients in the IGD group nearly 28.2% patients said that reuse of syringe contribute towards HIV/AIDs and hepatitis.

Figure 4: Source of Information about Hepatitis and HIV/AIDs.



In the baseline it was found that very few doctors provided information about these diseases to their patients (Hepatitis and HIV/AIDs 6–7%). However, post intervention, nearly 20% patients said that information was provided by doctors. Relatives, friends and personal experience accounted for information in 15% patients. Approximately 10% patients had heard about hepatitis, HIV/AIDs through radio, 25% through newspaper articles and 42% via television. Forty seven percent patients had heard about this information from the SIGN project team. In the baseline more than 80% patients in the intervention and control group said that they were more satisfied with the doctor if injection therapy was given. But after advocacy only 36.2% patients said that one of the criteria for satisfaction with the doctor was injection therapy.

Figure 5: Patient's Satisfaction with Injection Therapy.



The vast majority of patients in both the groups (46–50%) said that the site of the injection should be cleaned with the spirit before administrating injection. Nearly 51% patients in the intervention and 41% in the control group said that new and packed syringe should be used for injection therapy. (Table 13)

Table 13: Patient's Perception about what Precautions Should be Taken Before Administrating the Injection (After Advocacy).

	Intervention (n=500)		Control (n=400)	
Precaution Before Injection Use	**%**	**n**	**%**	**n**
Clean with spirit	58.6	(293)	46.0	(184)
Use new and packed syringe	51.0	(255)	41.25	(165)
Don't know	7.4	(37)	22.0	(88)

Patient's satisfaction with treatment ultimately depended upon good and effective medication as mentioned by 45–60% patients. The chief concern of the patients was relief of symptoms and cure from illness. Approximately, a quarter of patients said the HCPs, should be well-mannered and spend quality time with patients. Patients also said that the doctor should conduct a complete examination of the patients. About 14–18% patients felt that treatment should be cheap and affordable. (Table 14)

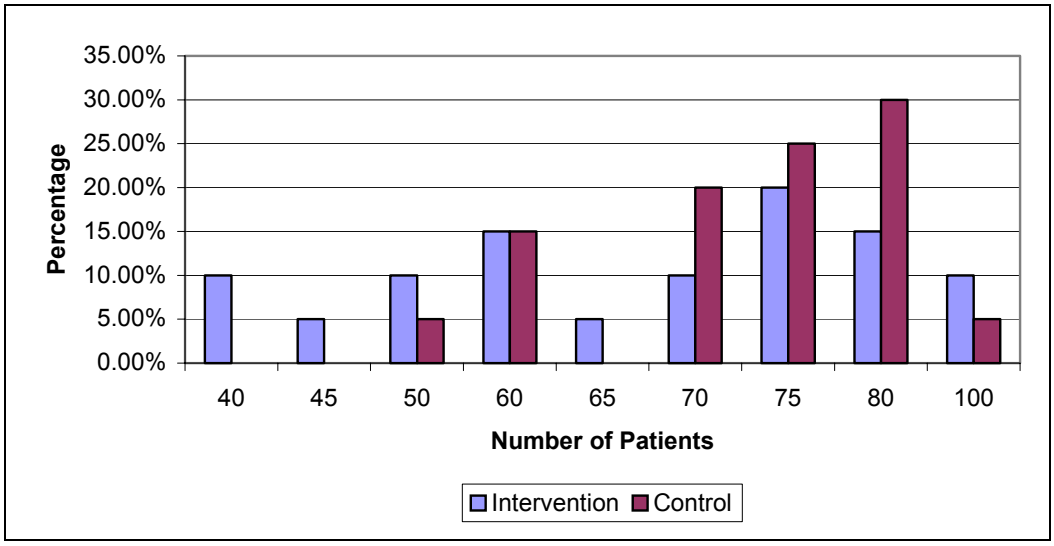
Table 14: Patient's Satisfaction with the Health Care Providers.

	Intervention (n=500)		Control (n=400)	
Patients Opinion about Satisfaction with HCPs	**%**	**n**	**%**	**n**
Complete checkup	29.2	(146)	44.25	(177)
Good manners	18.0	(90)	23.25	(93)
Good and effective medicine	54.8	(274)	45.0	(180)
Cheap treatment	18.2	(91)	14.0	(56)
Don't know	1.6	(8)	1.75	(7)

Interviews with Health Care Providers (HCPs)

The research area comprised of two congested urban areas. The intervention and control area were at a distance of 5 km from each other. These two areas were similar with respect to socio-economic conditions, environmental factors with 4–5 story buildings and congested flats. The health care providers were located in congested lanes close to each other and in strong competition with one another. At the baseline we obtained information from 21 formal health care providers (HCPs) and four unqualified HCPs (quacks) in the intervention group. Of them, 3 HCPs and 2 unqualified HCPs (quacks) dropped out of the study during the health education phase. In the control group, baseline information was obtained from 17 formal HCPs and 3 unqualified HCPs (quacks). All the HCPs were simple MBBS (basic medical degrees) except one who was a diploma holder. There were three homeopathic doctors and one dispenser and one lady health, visitor (LHV). The mean number of patients seen by HCPs in the intervention group was 69.5, while the control group HCPs saw a mean of 73.7 patients daily.

Figure 1: Numbers of Patients / day seen by HCPs.



The main diseases in the area included acute respiratory infections, diarrhoea, tuberculosis, hypertension, cold, cough, jaundice, diabetes etc. (Table 1)

Table 1: The Common Diseases Prevailing in the Area.

Diseases in the Area	Post Advocacy			
	Intervention (n=20)		Control Group (n=20)	
	%	n	%	n
Cold and cough	20.0	(4)	30.0	(6)
Fever	55.0	(11)	90.0	(18)
Colic	40.0	(8)	90.0	(18)
U.T.I	55.0	(11)	65.0	(13)
Diabetes	75.0	(15)	90.0	(18)
Tuberculosis	40.0	(8)	60.0	(12)
Hemiplagia	5.0	(1)	10.0	(2)
URTI	65.0	(13)	50.0	(10)
LRTI	55.0	(11)	15.0	(3)
Hypertension	80.0	(16)	85.0	(17)
Gastroenteritis	80.0	(16)	85.0	(17)
Diarrhoea	35.0	(7)	25.0	(5)
Vomiting	15.0	(3)	60.0	(12)
General Weakness	30.0	(6)	90.0	(18)
Malaria	5.0	(1)	60.0	(12)
Amoebiasis	15.0	(3)	10.0	(2)
Dysentery	70.0	(14)	65.0	(13)
Typhoid	65.0	(13)	60.0	(12)
Jaundice	50.0	(10)	35.0	(7)
Joint pain	0.0	(0)	15.0	(3)
Influenza	15.0	(3)	0.0	(0)
Depression	45.0	(9)	0.0	(0)
Food poisoning	5.0	(1)	0.0	(0)

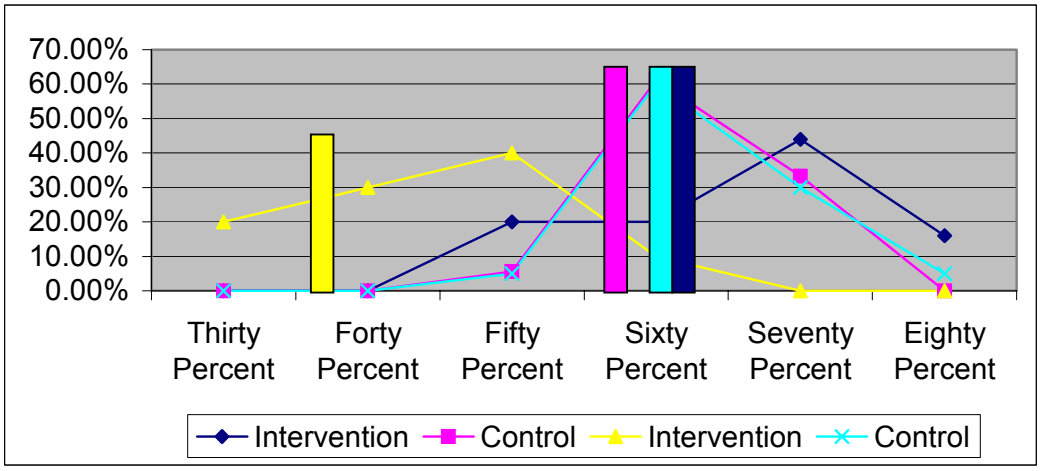
Most of the doctors prescribed injections for vomiting, colicky pain and hypertension. (Table 2)

Table 2: Condition for which Injections are Prescribed by HCPs.

	Post Advocacy			
Condition for Injection Prescription	**Intervention (n=20)**		**Control Group (n=20)**	
	%	**n**	**%**	**n**
Vomiting	70.0	(14)	90.0	(18)
Diarrhoea	5.0	(1)	25.0	(5)
Colic	80.0	(16)	90.0	(18)
Joint pain	20.0	(4)	5.0	(1)
RTI	20.0	(4)	10.0	(2)
Unconsciousness	10.0	(2)	10.0	(2)
Diabetes	50.0	(10)	0.0	(0)
Hypertension	40.0	(8)	90.0	(18)
Urinary retention	10.0	(2)	0.0	(0)
U.T.I	5.0	(1)	0.0	(0)
Allergies	20.0	(4)	25.0	(5)
Fever	5.0	(1)	30.0	(6)

In the baseline, the mean number of patients who received injections by the health care providers in the intervention group was 63.8% (SD ± 0.573) and 62.7% (SD ± 5.745) in the control group. After advocacy and health intervention the health care providers continued to give injections to a mean number of 63.8% (SD ± 6.129) patients in the control group. However, post health education a mean of 42.2% (SD ± 0.503) patients in the intervention group received injections.

Figure 2: Percentage of Patients Receiving Injection from Health Care Provider.



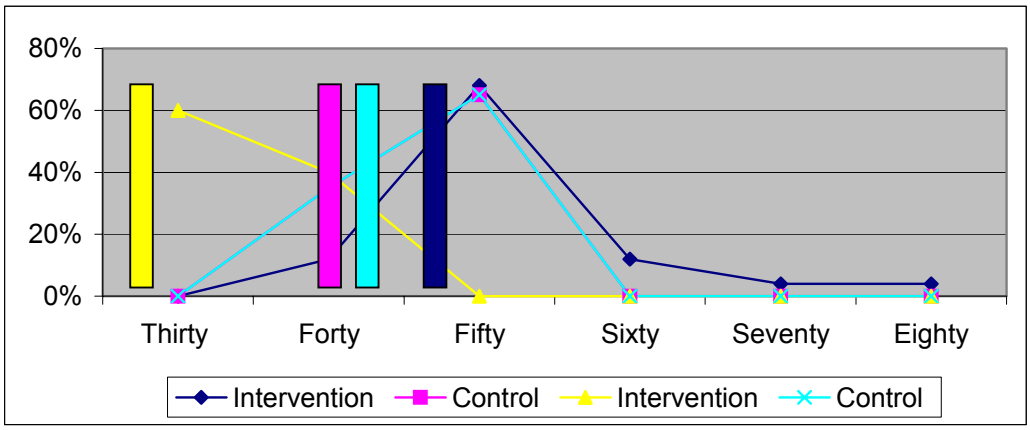
The conditions for which Health Care Providers (HCPs) for gave I/V drips included diarrhoea, dehydration, jaundice, generalized weakness (intervention: 10%, control: 35%) etc. (Table 3)

Table 3: Condition for which I/V Drips are Prescribed by HCPs.

	Intervention (n=20)		Control (n=20)	
Condition for I/V Drips	**%**	**n**	**%**	**n**
Dehydration	65.0	(13)	85.0	(17)
Diarrhoea	65.0	(13)	100	(20)
General Weakness	10.0	(2)	35.0	(7)
Vomiting	20.0	(4)	10.0	(2)
If patient is N.P.O	45.0	(9)	75.0	(15)
Hypovolemia	15.0	(3)	0.0	(0)
Unconsciousness	15.0	(3)	5.0	(1)
Shock	0.0	(0)	15.0	(3)
Jaundice	40.0	(8)	55.0	(11)

In the baseline, health care providers in the intervention group reported that on an average drips were given to 51% of their patients and in the control group health care providers provided drips to 46.5% of their patients. Post intervention, the mean percentage of patients receiving drips remained the same in the control group, i.e 46.4% as opposed to 32.2% in the intervention group.

Figure 3: Percentage of Patients Receiving I/V Drips from Health Care Provider.



When the doctors were asked their opinion regarding conditions for which injections should be given, most of them mentioned colic (intervention 50% and control 90%) Hypertension (intervention: 35% control: 50%), infection (intervention: 10% control: 40%). (Table 4)

Table 4: Conditions in which Injections Should be Given According to HCPs.

	Intervention (n=20)		Control (n=20)	
Conditions for Which Injection Should be Given	**%**	**n**	**%**	**n**
If patient in NPO	10.0	(2)	10.0	(2)
Asthma	15.0	(3)	5.0	(1)
Severe infection	10.0	(2)	40.0	(8)
Hypertension	35.0	(7)	50.0	(10)
Colic	50.0	(10)	90.0	(18)
Allergies	20.0	(4)	15.0	(3)
Diabetes	35.0	(7)	0.0	(0)
U.T.I	20.0	(4)	0.0	(0)
Urinary retention	10.0	(2)	0.0	(0)
Impotency	10.0	(2)	0.0	(0)
Don't know	5.0	(1)	0.0	(0)

On the other hand, most doctors felt that I/V drips should be given for jaundice (intervention: 75% control: 95%), generalized weakness (intervention: 20% control: 45%), dehydration (intervention: 70%, control: 60%). More reasons were cited by the control group as compared to intervention group. (Table 5)

Table 5: Conditions for Which I/V Drips should be Given According to HCPs.

	Intervention (n=20)		Control (n=20)	
Condition for I/V Drips	**%**	**n**	**%**	**n**
General weakness	20.0	(4)	45.0	(9)
Jaundice	75.0	(15)	95.0	(19)
Hypovolemia	15.0	(3)	0.0	(0)
If patient is NPO	30.0	(6)	75.0	(15)
Dehydration	70.0	(14)	60.0	(12)
Diarrhoea	45.0	(9)	20.0	(4)
Vomiting	10.0	(2)	5.0	(1)
Unconsciousness	30.0	(6)	35.0	(7)
Gastroenteritis	15.0	(3)	0.0	(0)

Quick relief was cited as the chief advantage of injections by majority of the doctors in the intervention and control group (65–80%). More doctors in the control group (95%) as well as doctors in the intervention group (40%) said that injection therapy resulted in early and complete recovery from illness. The majority of the doctors said that they had received the information regarding the advantages of injections mainly from books (95%) or their personal experience. Advocacy seminars and journals contributed to 50% of the knowledge of the doctors. Media was responsible for 50% information obtained by health care providers in the intervention group as compared to 10% in the control group. (Table 6)

Table 6: Knowledge About Advantages of Injections and their Sources According to HCPs.

	Intervention (n=20)		Control (n=20)	
Advantages	**%**	**n**	**%**	**n**
Quick relief of symptoms	80.0	(16)	65.0	(13)
Full dosage	25.0	(5)	60.0	(12)
Early recovery from illness	40.0	(8)	95.0	(19)
Patient satisfaction	10.0	(2)	0.0	(0)
Safety compliance	5.0	(1)	0.0	(0)
Source of Knowledge				
Books	95.0	(19)	100	(20)
Seminars	45.0	(9)	15.0	(3)
Journals	55.0	(11)	30.0	(6)
Personal experience	100	(20)	100	(20)
News Papers	50.0	(10)	10.0	(2)
Radio	50.0	(10)	10.0	(2)
Television	50.0	(10)	10.0	(2)

When talking about the disadvantages of injection more responses were given by health care providers in the intervention group. These included abscess (intervention: 65%, control: 20%), swelling (intervention: 35%, control: 10%), allergic reaction (intervention: 45%, control: 75%). Hepatitis and HIV/AIDs were mentioned chiefly by intervention group health care providers, nearly 95-100% cases as compared to no HCPs in the control group. Most of the doctors had received this information by reading books. Very few through seminars or journals (20%), Personal experience

was important in nearly 60–90% cases. Doctors in the intervention group were more influenced by media (50–60%), The SIGN project team was responsible in providing information to 100% health care providers in the intervention group. (Table 7)

Table 7: Disadvantages of Injections According to the HCPs.

	Intervention (n=20)		Control (n=20)	
Disadvantages of Injection	**%**	**n**	**%**	**n**
Flare up of disease	5.0	(1)	0.0	(0)
Allergic Reaction	45.0	(9)	75.0	(15)
Hypotension	10.0	(2)	0.0	(0)
Psychological fear	5.0	(1)	0.0	(0)
Abscess	65.0	(13)	20.0	(4)
Swelling	35.0	(7)	10.0	(2)
Pain	45.0	(9)	100	(20)
Hepatitis	100	(20)	0.0	(0)
HIV/AIDs	95.0	(19)	0.0	(0)
Source of Knowledge				
Books	100	(20)	100	(20)
Seminars	50.0	(10)	0.0	(0)
Journals	20.0	(4)	20.0	(4)
Personal experience	95.0	(19)	60.0	(12)
News papers	60.0	(12)	0.0	(0)
Radio	50.0	(10)	0.0	(0)
Television	50.0	(10)	0.0	(0)
SIGN Project Team	100	(20)	0.0	(0)

The chief advantages of I/V drips that were advocated by HCPs in the control group included provision of energy (intervention: 40%, control: 80%), rehydration (intervention: 35%, control: 90%) and hypotension. (Table 8)

Table 8: Knowledge About Advantages of I/V Drip and their Sources According to HCPs.

	Intervention (n=20)		Control (n=20)	
Advantages of Drips	**%**	**n**	**%**	**n**
Maintenance of Electrolyte Imbalance	10.0	(2)	0.0	(0)
Hypertension	5.0	(1)	0.0	(0)
Rehydration	35.0	(7)	90.0	(18)
Effective in Weakness	40.0	(8)	80.0	(16)
Best for NPO	45.0	(9)	15.0	(3)
Effective in Post Surgery Patient	35.0	(7)	0.0	(0)
Effective in Shock	5.0	(1)	0.0	(0)
Effective in Unconscious Patients	15.0	(3)	0.0	(0)
Corrects Low Blood Pressure	20.0	(4)	0.0	(0)
Don't know	5.0	(1)	0.0	(0)
Source of Knowledge				
Books	95.0	(19)	100	(20)
Seminars	55.0	(11)	0.0	(0)
Journals	30.0	(6)	5.0	(1)
Personal experience	95.0	(19)	100	(20)
News Papers	55.0	(11)	0.0	(0)
Radio	0.0	(0)	0.0	(0)
Television	5.0	(1)	0.0	(0)

Most of the health care providers had obtained this information either from books or through personal experience (95–100%). In very few cases, this information was provided by the media, newspapers and television.

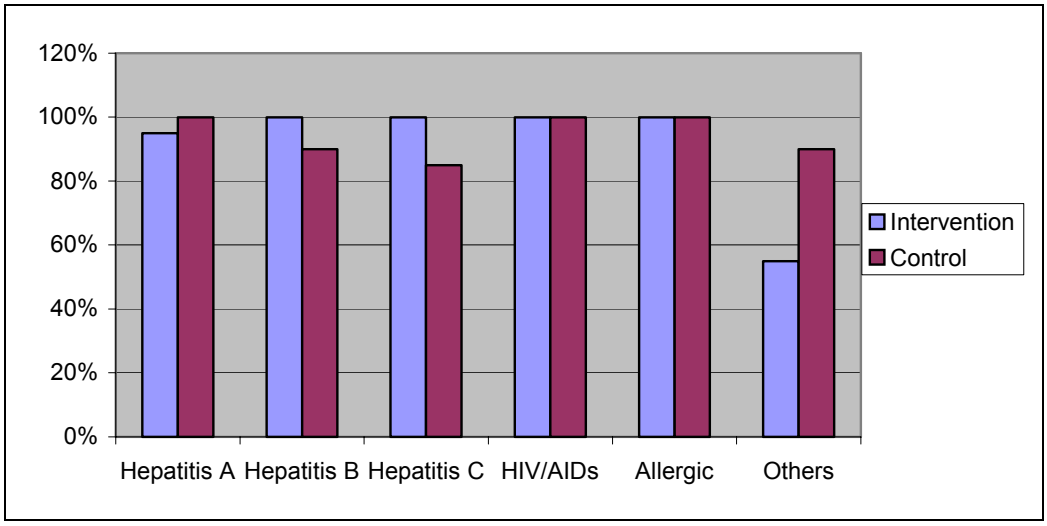
Health care providers both in the intervention and control group cited fever, shivering, edema, as being one of the side effects of drips (60–80%). However, intravenous drips per se predisposing to hepatitis and HIV/AIDS was cited only by HCPs in the intervention group 75–85%. Again, the source of information was mainly books, personal experience or seminars (intervention group). Few doctors read journals (10%), media (newspapers, radio, television) played no part in providing any information. All the doctors in the intervention group mentioned that the SIGN Project Team was responsible for imparting this knowledge. (Table 9)

Table 9: Knowledge About Disadvantages of I/V Drips According to their Sources.

	Intervention (n=20)		Control (n=20)	
Disadvantages of Drips	**%**	**n**	**%**	**n**
Fever	50.0	(10)	100	(20)
Chills / shivering / rigors	60.0	(12)	90.0	(18)
Fluid overload	5.0	(1)	0.0	(0)
Excessive mictiuration	20.0	(4)	0.0	(0)
Swelling / Edema	45.0	(9)	70.0	(14)
Pneumonia	30.0	(6)	0.0	(0)
Waste of time	20.0	(4)	5.0	(1)
Raises blood pressure	15.0	(3)	0.0	(0)
Swelling at I/O point	5.0	(1)	0.0	(0)
Abscess at I/O point	0.0	(0)	5.0	(1)
Hepatitis	75.0	(15)	0.0	(0)
HIV/AIDs	85.0	(17)	0.0	(0)
Missing	10.0	(2)	0.0	(0)
Source of Knowledge				
Books	95.0	(19)	100	(20)
Seminars	55.0	(11)	0.0	(0)
Journals	10.0	(2)	10.0	(2)
Personal experience	80.0	(16)	45.0	(9)
Newspapers	5.0	(1)	0.0	(0)
Radio	0.0	(0)	0.0	(0)
Television	0.0	(0)	0.0	(0)
SIGN Project Team	100	(20)	0.0	(0)

The previous questions were asked regarding the HCPs own perception whether injections were associated with any risk, and some doctors mentioned Hepatitis and HIV/AIDs and some did not. However, when asked directly about the risk of hepatitis and HIV/AIDs with injection therapy, nearly all of them answered in affirmative in both the groups.

Figure 4: Doctors Knowledge about Risk Associated with Injections.



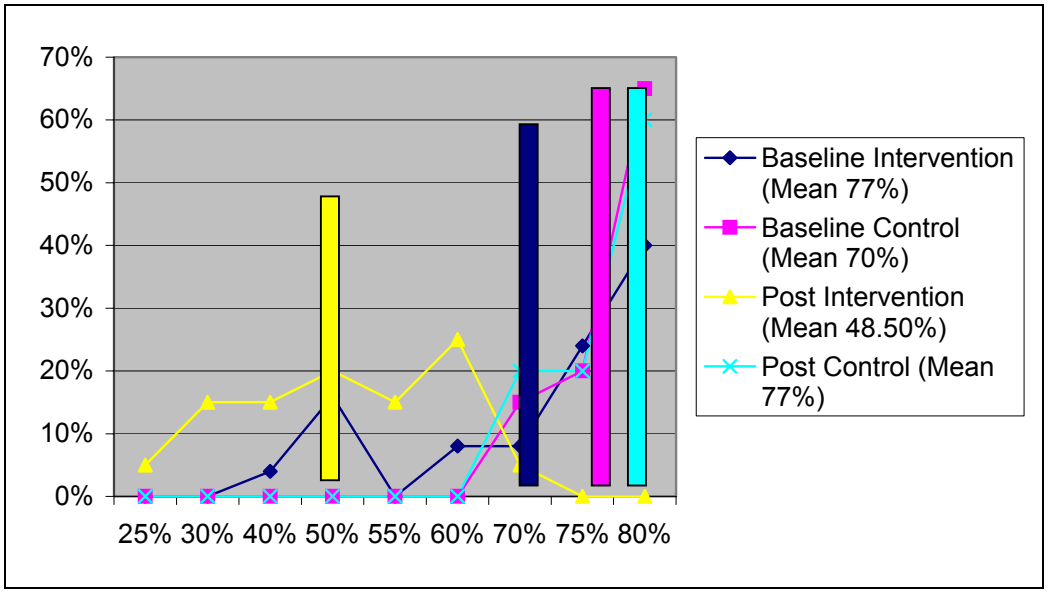
Around 95% HCPs in the intervention and 55% in the control group had come across patients with hepatitis or HIV/AIDs. Half of them referred them to consultants and many kept them on regular follow up. Some (20%) in the intervention group counseled them. (Table 10)

Table 10: Actions taken by HCPs coming across Hepatitis and HIV/AIDs Patients.

	Post Advocacy			
Advice Given	**Intervention**		**Control**	
	%	**n**	**%**	**n**
Refer them to a Consultant / Specialist / Hospital	45.0	(9)	55.0	(11)
Counsel them	20.0	(4)	5.0	(1)
Regular follow up	15.0	(3)	40.0	(8)
Advised not to donate blood	5.0	(1)	0.0	(0)
Proper treatment	15.0	(3)	0.0	(0)

In the baseline, a mean of 77**%** (SD ± 3.804) doctors in the control group and 70% (SD ± 12.66) in the intervention group mentioned that it was the patients who demanded injections. After advocacy, the mean percentage of patients demanding injections remained at 77% (SD ± 4.104) in the control group but come down to 48.5 % (SD ± 12.6) in the intervention group.

Figure 5: Percentage of Patients Demanding Injections According to HCPs.



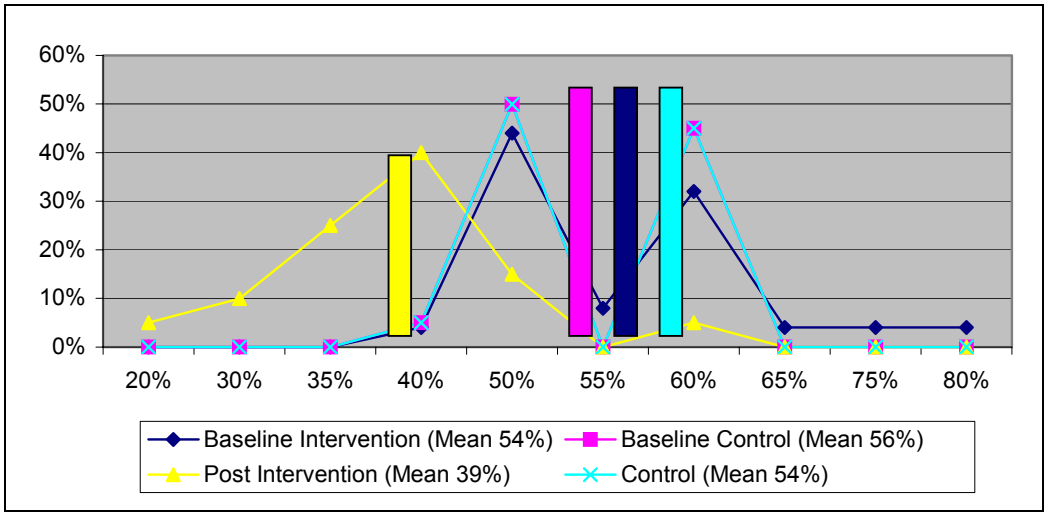
Nearly all the health care providers thought that patients prefer injections because it brings quick relief from illness. Some (15%) said that injection therapy is less expensive because there is early recovery and prolonged use of injections are generally not needed. Psychological satisfaction of the patients played a very important role in the patients demand for injection (30 –50%). (Table 11)

Table 11: HCPs Perception on why Patients Prefer Injection Therapy.

	Post Advocacy			
	Intervention		Control	
	%	n	%	n
Quick relief	100	(20)	100	(20)
Less expensive	15.0	(3)	0.0	(0)
Psychological satisfaction	60.0	(12)	30.0	(6)
Missing	5.0	(1)	0.0	(0)

Nearly all HCPs said that drips were given only on patient demand. In the baseline the percentage of patients demanding drips varied from 54–56% in the intervention and control group. After health advocacy, this percentage remained at 54% in the control group but came down to 39% in the intervention group.

Figure 6: Percentage of Patients Demanding I/V Drips According to HCPs.



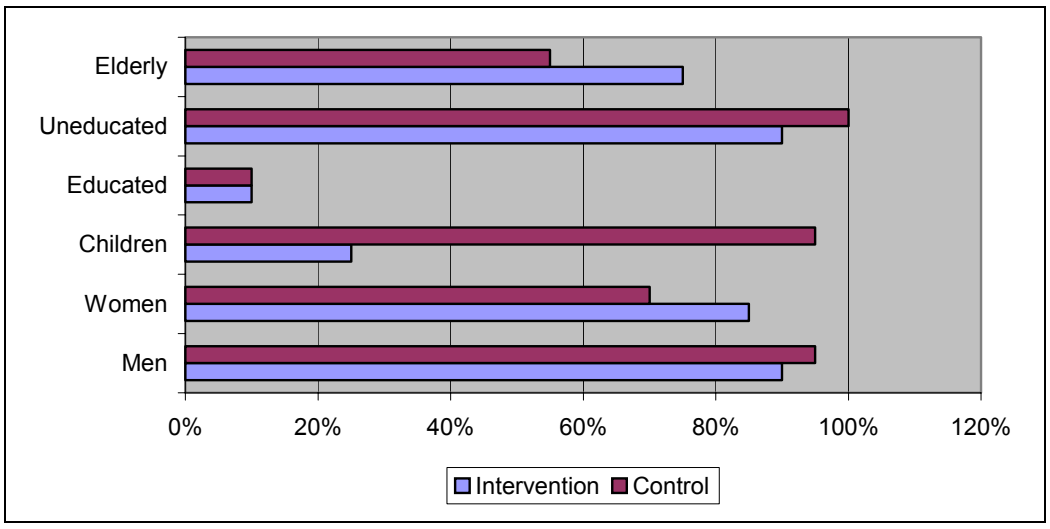
At the baseline, nearly all health care providers (96–100%) felt that injection were more effective then oral medication. However, after health education 85% HCPs in the intervention group felt the same as compared to 100% in the control group. The HCPs felt that injections were more effective than oral medication in conditions like vomiting, diarrhoea, and colic pains etc. (Table 12)

Table 12: Condition for which Injections are More Effective then Oral Medicine According to HCPs.

	Intervention (n=20)		Control (n=20)	
Condition in which Injection are more effective	**%**	**n**	**%**	**n**
Vomiting	95.0	(19)	85.0	(17)
Diarrhoea	10.0	(2)	0.0	(0)
Colicky pain	55.0	(11)	65.0	(13)
NPO	15.0	(3)	5.0	(1)
Asthma	5.0	(1)	0.0	(0)
Missing	15.0	(3)	0.0	(0)

The HCPs felt that there was more demand from male patients for injections (90 – 95%). The demand for injections from female patients was comparatively less (70 – 85%). Interestingly, only a minority (10%) of educated patients demanded injections as opposed to the uneducated (90–100%).

Figure 7: Categories of patients who demand injection.



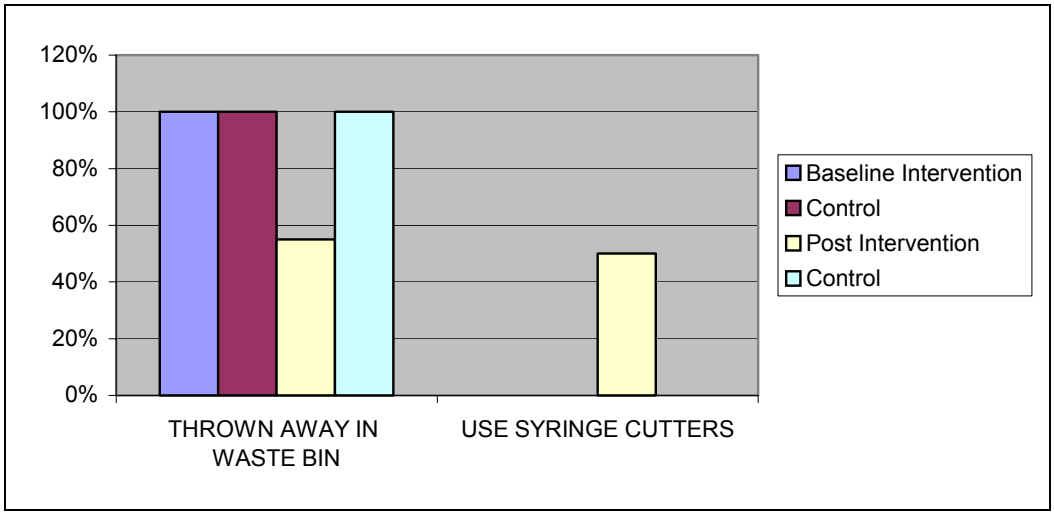
When asked at baseline what do the HCPs do when patients demand injections, nearly all (96–100%) said that they give the injections to the patient. However, after advocacy HCPs in the intervention group had slight change in attitude whereby 55% said that they try to counsel the patient and discourage him from getting injections. About 25% said they try to avoid them and 30% said that they give the injection. (Table 13)

Table 13: HCPs Actions When Patients Demand Injection.

	Before Advocacy				After Advocacy			
	Intervention		Control		Intervention		Control	
	%	n	%	n	%	n	%	n
Counsel patient	4.0	(1)	0.0	(0)	55.0	(11)	5.0	(1)
Give the injection	96.0	(24)	100	(20)	30.0	(6)	95.0	(19)
Try to avoid injection	0.0	(0)	0.0	(0)	25.0	(5)	0.0	(0)
Don't know	0.0	(0)	0.0	(0)	5.0	(1)	0.0	(0)

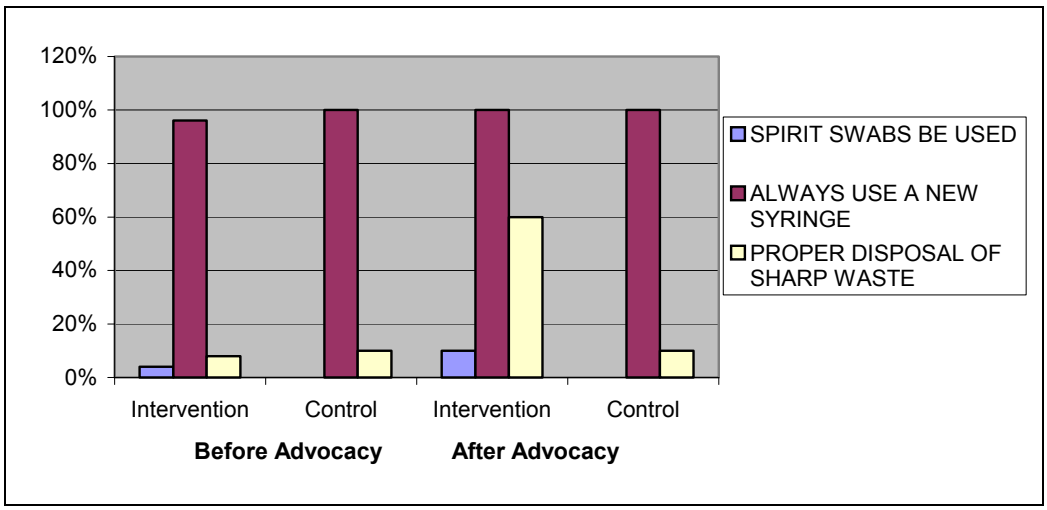
At the baseline all the HCPs were disposing off sharp waste by throwing it in the waste bin. This practice continued as before after health advocacy interval in the control group. But in the intervention group 50% of the HCPs started using needle cutters.

Figure 8: Disposal of Sharp Waste by GPs.



Use of a new syringe was advocated by HCPs both in the intervention and control group at baseline and post intervention. However, proper disposal of sharp waste was advocated only by HCPs in the intervention group (60%).

Figure 9: Measures to Promote Safe Injection Practices by HCPs.



At the baseline HCPs felt that if they prescribe injections, their status in the community is elevated and patients look upto them. This view was shared by 55% of post intervention HCPs. Most of the HCPs who had not received health education said that their income showed a better trend, if they prescribed injections. Though, 75% of post intervention HCPs did not share this opinion. (Table 14)

Table 14: Whether Injection Prescribing Affects Status Popularity and Income of HCPs.

	Before Advocacy				After Advocacy			
	Intervention		Control		Intervention		Control	
	%	n	%	n	%	n	%	n
Status	72.0	(18)	90.0	(18)	55.0	(11)	90.0	(18)
Income	76.0	(19)	65.0	(13)	15.0	(3)	75.0	(15)
Popularity	4.0	(1)	0.0	(0)	35.0	(7)	0.0	(0)
Don't know	0.0	(0)	0.0	(0)	10.0	(2)	0.0	(0)

About a quarter of the doctors in both the groups said that they gave more time to the patients if injection therapy was given. But the rest said injection prescription did not make any difference in the time that HCPs give for consultation. HCPs in both the group felts there was a better follow up if the patients were given injections. The cost of the visit was also higher when injections were prescribed.

The interviewer made certain observations regarding Safe Injection practices in the Clinics of the HCPs. Needle cutters previously not used in any groups were seen in all the HCPs of the post intervention group. Newly packed disposable syringes which were initially found in 40–60% in the baseline (intervention and control group) and a similar percentage in the control group, was found in nearly all the clinics of HCPs in the intervention group. Adequate staff was seen in 60-80% in the clinics. Clinics were found to be clean in 60-80% of HCPs. Needle and syringes lying scattered were found in a quarter of the control clinics. (Table 15)

Table 15: Observations.

	Before Advocacy				After Advocacy			
Disposal of Syringe	**Intervention**		**Control**		**Intervention**		**Control**	
	%	**n**	**%**	**n**	**%**	**n**	**%**	**n**
Presence of needle cutter	4.0	(1)	0.0	(0)	100	(20)	0.0	(0)
New and packed syringes	64.0	(16)	40.0	(8)	100	(20)	40.0	(8)
Adequate paramedic staff	84.0	(21)	60.0	(12)	95.0	(19)	60.0	(12)
Cleanliness in clinic	88.0	(22)	55.0	(11)	100	(20)	55.0	(11)
Needle and syringes scattered	20.0	(5)	25.0	(5)	0.0	(0)	25.0	(5)

Interactive Group Discussions

Interactive group discussions were held with the health care providers (HCPs) in the intervention group. The interactive group discussions (IGDs) involved a lively interaction between the health care provider and patients. The research officer of the SIGN Project Team acted as a facilitator and coordinated the discussion between the HCPs and patients. A group of 10 to 12 patients comprised of the participants. The IGDs were held in the clinic of the doctor after the clinic hours were over. Due to socio cultural reasons separate IGDs were held separately for male and female patients. Initially, the HCPs expressed a lot of apprehensions about direct interaction with patients on such sensitive issues. However, after lots of convincing and motivation, the HCPs agreed to interact with the patients and after the initial hesitation the HCPs developed comfort interacting with them. The IGDs lasted from 45 minutes to an hour.

At the beginning of the IGD, the research officer of the SIGN Team introduced the topic to the participants, the aims and objective of IGDs were introduced and the discussion was initiated by discussing with the participants various illnesses for which they consult the health care provider (HCPs) and whether they receive injection or oral therapy. In most IGDs prescribers were initially very apprehensive about directly interacting with their patients. In some IGDs an atmosphere of confrontation did develop specially when the patients discussed the financial benefits to the prescribers. In the initial half of the IGDs, the patients usually put the responsibility of over prescribtion of injection therapy on the HCPs. Some of the HCPs initially did go on the defensive but on intervention from the facilitator, the HCPs would then question patients about their preference for injections. The facilitator had to intervene on several occasions to ensure the prescribers did not become too aggressive. When the discussion topic moved to why HCPs generally made no effort to educate patients, the facilitator used his discretion to slowly encourage the prescriber to use this opportunity to educate the patients. Most prescribers at the conclusion of the IGDs felt that the barrier between the HCPs and patients was broken whereby prescribers felt more comfortable in communicating with patients. Most prescribers said that the IGDs provided a very good opportunity to interact with patients and they would now be more comfortable

talking to patients not only on injections safety but also on other sensitive issue. They felt IGDs could also the used to clarify misconceptions in the minds of patients about other such topics. Some mentioned that this was the first instance they had spent time with patients in a relaxed atmosphere and tried to see the point of view of patients, which would help them in their daily practice. The patients on the other hand also felt the IGDs to be extremely useful as their misconceptions about injection overuse were clarified not through a via media or third person but by their own trusted doctor. Hence, they felt more convinced about the hazards of injections. Patients said that generally they had no opportunity to discuss injection overuse by the HCP, as he always prescribed injections for treatment of even minor illnesses, even if they were more comfortable with oral medication. The patients had many misconceptions regarding the fact that the doctors prefer to give injection therapy and injections were more rapidly acting and more effective than oral medication, and this (IGD) provided an opportunity to directly interact with the HCPs in a comfortable atmosphere. At the end of the IGDs, the patients left convinced by their own prescribers that injections did not always result in rapid and more effective cure for an illness, but in fact overprescription and unnecessary injections were hazardous to the patient's health.

1. "Doctors prescribe injections for most illnesses and rarely use oral medications"

Patients:

Most patients said that from childhood they have always been given injections for each and every illness, so as soon as they enter the HCPs clinic they are mentally prepared to receive injection therapy rather than oral therapy. Doctors tend to see as many patients as possible in a short period of time, and hence they give injections to most of the patients, which is an easy way out. Doctors have made us dependent upon injections and we mentally feel that we will not get well, unless we are given injections.

"Doctors tell us injection first then tablets"

"It seems that doctors and dispensers are waiting ready with injections and give injections as soon as the patient walks in"

Many patients said that we can take oral medications ourselves but we cannot inject ourselves, hence it is the doctors who gives us the injection. According to one patient if we ask the doctor for alternate treatment the response of the doctor is that

"*Are you the doctor or am I a doctor"*

Health Care Provider:

The health care providers said that we tell the patient that the injections are not necessary for treatment of every illness and that prevention is better then cure. However, the patients are unwilling to accept oral medication and keep on demanding injection. If we don't give them injections the patients say, " You are not a doctor". Many doctors said that we try to tell them that oral medication is as effective as injections, but the patients feel that the treatment is incomplete if oral medication is prescribed. Many patient don't come to the doctor if he/she does not give them injections. Many of our colleagues practicing in nearby clinics prescribe injections and the patient tends to go to these HCPs. Hence, we succumb to patient's demand and give injections to compete with our colleagues. Quite a few patients don't like to swallow tablets and prefer injection.

2. "Injection provides rapid relief and early recovery"

Patient:

According to the patients, doctors want to see as many patient as possible in a short period of time and also want patients to come back to them for follow up. Hence they tell us that only injections will work fast and give us immediate relief. We being patients, obviously expect early recovery and relief and it is up to the doctor to tell us which is the best source of treatment. However, the doctor being in a hurry gives injections to every patient without explaining anything. Many patients said that even if we don't want injection therapy, doctors tell us that we will not recover soon, if we don't agree to injections, hence we have no alternative but to follow what the doctor says. Some patients mentioned that doctor gives injection (Avil) for each and every condition, probably for early relief.

Health Care Providers (HCPs):

The doctors were very strong in their protest against this allegation. The doctors said that as soon as the patients enters the clinic he complains that he is in severe pain or has fever and says.

"Doctor please give me an injection so that I can get immediate relief"

Many male patient are labourers and daily wagers and say that they cannot afford to sit at home for more then one day, and insist on receiving injections, so that they can immediately go back to work. If we don't give them injection and drips, and prescribe oral medication or nutritious food, they immediately walk out of the clinic and go and consult another HCPs. Patients expect immediate relief and feel that as soon as they step out of the clinic they should start feeling better. Even patients who are not working don't like to come for prolonged treatment and expect relief in a day or two, so we have no choice but to give them injections in order for them to recover immediately.

3. "Doctors don't educate patient regarding safe injection"

Patient:

According to the patients doctors are in a hurry to see as many patients as possible in a short period of time and hardly give any time to talk to patients or educate them. They never try to explain what illness we have, whether we need injection for that illness or not and if any alternate therapy is available. We are patients and we tend to follow to all the advise given by the doctor. If the doctors were to explain to us the hazards of injection, we would definitely follow their advice and not insist on injection. Doctors tend tosee 2–3 patients at one time, so how do you expect them to explain anything to the patients. We have never heard any doctor tell us about Hepatitis or HIV/AIDs. Patient counseling seems to play no part in therapy.

Doctors:

When patients come, they are usually in a hurry to receive treatment and have no time to listen to us. Most patients don't have time to even wait for their turn, what to talk of

sitting and listening to us. Counseling is only possible if patients are in a mood to sit at ease and are open to the advice we give them. Patients never like to hear about preventive measures and are only interested in curative treatment and early relief. Life is running in a very fast pace and everyone is in a hurry to get to their work. The doctor's clinic is just a stop and they want to go home as soon as possible. If patients have to wait too long they walk out and go and see another doctor. If we try to explain and health educate them they tell us

"Doctor we are in a hurry, please don't give us long lectures, give us the treatment we are asking for and relieve us of pain"

*T*he patients make fun of us if we try to talk to them about preventive measures and they tell us "*Are you a doctor or a preacher"* therefore to keep our clients happy we give them the treatment that they ask for.

4. "Injection therapy provides extra financial benefit to doctors"

Patient:

According to the patients, injection therapy is always very expensive. Doctors tend to prescribe new medications especially newly introduced expensive parenteral therapy, which is very expensive and expect us poor patients to pay for these injection. Since, we want relief from our symptoms, we have no choice but to follow the instruction of the doctors. Even if the patient does not need injections, the doctor prescribes injections to take more fees.

Doctor:

The doctors said that this was not true, because oral treatment is prolonged and patients don't want to spend money on oral medication for 5–7 days. On the contrary injection therapy is of short duration and hence less expensive. Before coming to the doctor, the patients themselves buy expensive medicines from the store without realizing that indiscriminate use of medicines is hazardous. More expensive the medicine, the better

they feel. However, when we prescribe any medicine (injection or oral), patients always say medicine is expensive. They feel that they can save money by going to the medical store directly and asking the storekeeper for the medicine, and thus save on the doctor's fees but on the contrary they finally end up at the clinic because, they don't get cured and finally have to come to us. If we then prescribe injections or any other medications they feel that the treatment is expensive.

5. "Injections and drips give energy and strength"

Patient:

Patients said that doctors tell us that we need injections or drips to regain energy and strength *(Taqat)* and that injections are more stranger then oral medications. Doctors tell patients that either we should get one drip every day to give strength or a course of multivitamin injections which will give us energy. They can prescribe multivitamin tablets or tell us what energy containing nutritious food, what vitamins and iron rich foods, we should eat to gain strength. But they never have time to talk about nutritious foods. Even if we do not complain of weakness and go to the doctor for any minor illness, the doctor tends to tell us that we are very weak and need injections or drips to give us energy.

Doctor:

Doctors said that patients especially come to us demanding drips and injections for strength (*Taqat*). If we talk to them about nutritious food they get irritated and want a magic dose of injection to give them strength. Mostly labourers especially (*Pathan)* walk to the clinic demanding drips and injection to give them energy. The same is true for women who complain of weakness and lethargy to demand multivitamin injections. None of them want to have daily multivitamin tablets. We have no choice but to succumb to the demand of the patients otherwise they go to clinics of other doctors.

6. "Doctors boil syringes and reuse them."

Patient:

According to the patients, many competent doctors boil syringes and reuse them. It is a very common practice amongst doctors to reuse the same syringe on different patients. Some patients mentioned that dispensers are generally in league with professionals who repack used syringes. They generally sell used syringe to the syringe mafia, who then repacks these syringes and sell them to medical stores. The majority of the patients said that dispensers don't open the packed syringes in front of them, rather they tell the patients that they have already opened the packed syringe inside the dispensary and that this is a new syringe they are using. Patients said that they have no choice but to accept what the dispenser says.

"We have rarely come across doctors who use packed syringes and open them in front of us"

"When we ask doctors / dispensers to open the packed syringe in front of us they say that we have an experience of 5 to 10 years in giving injections. Are you going to teach us what to do?"

"We have never been told by doctors that it is harmful if injections are given with used syringes"

Some patients mentioned that some doctors only change needles and tell the patients that changing the needle is good enough to prevent transmission of infections.

Doctor:

Most doctors said that they don't boil syringes and reuse but rather their colleagues in nearby clinics boil them. Some colleagues in nearby clinics reuse the same syringe on at least 8-10 patients, boiling the syringe every time. If we ask the patients to buy packed syringes from the medical stores they don't want to spend money on buying packed syringes. Doctors said that we try our best to ensure that our dispenser uses packed syringes, but we are usually busy with other patients and cannot always keep an eye on

what the dispenser is doing. It is up to the patients to ensure that dispensers open the packed syringes in front of them and if he doesn't do that, they should come and complain to us. Many patients don't want to spend money on quality packed syringes and say that "*xyz"* doctor uses boiled syringes and we have not seen any patient develop Hepatitis and HIV/AIDs. So our health education becomes meaningless.

7. "Used syringes are just scattered and thrown away in the clinics and there is no proper system of sharp waste disposal"

Patient:

In most clinics injections after use are simply thrown away in the waste and the syringes and needles are found scattered. Some patients said that the dispenser after use keeps the syringes and needles, and sells them to the injection mafia who repacks the syringes and sells them of. Some patients said that the doctors tell them that they burn the syringes though we have never seen them do that. Most patients said that they have never seen any doctors use sharp waste boxes or needles cutters. Even if dispenser themselves are not involved in the business of "*reused syringes",* patients see syringes scattered in the garbage dump and scavengers collecting them.

Doctors:

In our own clinic we dispose of the sharp waste however it is our neighboring clinics where there is no system of sharp waste disposal. It is also up to the patients to insist that the dispenser should break the needle and cut off the syringe in front of them. It is also for the benefit of the patient himself and other patients also but the patients are always in a hurry and are never interested in preventive measure. There is a very strong mafia of repacking used syringes and we try not to be part of it, but unfortunately many other clinics indulge in it.

Focus Group Discussions

Focus group discussions were held initially at baseline and then repeated post intervention. At the baseline two Focus Group Discussion (FGD), were held in the intervention group (one for males and other for females) and the same was done in the control group. At post intervention again FGDs were held in the intervention and control group, two each for male and females. The FGDs were held in clinics of the doctors comprising of 10 to 12 participants each.

1. "Why do patients prefer injection"

Baseline (Intervention and Control) and Control (Post Intervention)

Most patients said that they prefer injections because it gives them immediate relief and early recovery from their symptoms. Relief from severe pain was cited as an important reason for injection therapy as many patients said that they are unable to tolerate pain and injections are the only form of treatment for immediate relief from symptoms. Interestingly, some patients said that

"*Half our illness is anyway gone when the doctors prescribes injections"*

"We are more satisfied and feel our illness will be treated better, if the doctor gives us injection"

Most patients also said that it is important for them to get back to work as soon as possible, because they are the sole earning member and they cannot afford to sit at home even for a day.

Intervention Group (Post Advocacy)

Most patients said that they come to the doctor's clinic expecting relief from the symptoms and treatment of the illness. They tend to follow whatever advice the doctor gives for relief for their symptoms. Patients said that doctors advises them injection therapy instead of oral therapy as injections are a better form of therapy to provide relief from pain and early recovery. Even if the patients don't want injection therapy, doctors convince them that injections are better then oral medicines. Many patients said that doctors advise injection so as to charge more fees from the patients.

2. "What are the alternate sources of treatment"

Baseline (Intervention and Control) and Control (Post Intervention)

Most of the patients felt that other alternative sources of treatment were not very important and that injections were necessary to treat the illness. However, many said that with injection therapy nutritious food and juices should be taken to give more energy and extra strength. Especially in cases of diarrohea, ORS has a very important role. Many patients mentioned banana, oranges and other foods for strength and vitality.

Intervention Group (Post Advocacy)

Participants again mentioned that fruits, juices and glucose give strength. However, some of them said that tablets and syrups in younger patients are equally effective as alternates to injections especially in younger kids. They said that glucose and ORS could be given instead of drips in cases of gastroenteritis.

3. "Advantages of injection"

Baseline (Intervention and Control) and Control (Post Intervention)

Patients felt that the main advantage of injection therapy was quick relief of symptoms and early recovery from illness. The duration of illness is therefore short and patients can return to work early.

Intervention Group (Post Advocacy)

Similar views were expressed by patients such as early relief of symptom especially pain and fever, which were the chief advantages of injection. This was especially expressed by the daily wagers who are keen to go back to work early.

4. "Disadvantages of injection"

Baseline (Intervention and Control) and Control (Post Intervention)

Patients felt that if the injection is given by an inexperienced person it can cause pain and swelling. Some patients felt that abcess can develop if injections are given in a wrong way. Many patients said that some times injection could cause severe reaction, which could be very dangerous.

Intervention Group (Post Advocacy)

Many patients said that injections cause pain, swelling and development of abcess. Allergic reactions were quoted by quite a few patients. However, the biggest and most important disadvantage of injection therapy was transmission of hepatitis B and C and HIV/AIDs especially when syringes were reused. If a patient has hepatitis B or C or HIV/AIDs it can be transmitted to the other patients by the same needle or syringes if used on another patient. Since it is difficult to know whether new packed syringes were being used to give injections it is better not to get an injection.

5. "Safe injection practices"

Baseline (Intervention and Control) and Control (Post Intervention)

Patients said that syringes are generally thrown away in the waste bin and they should not be reused. Some suggested that syringes should be burnt and thrown away in the waste bin. Many patients said that the best way to ensure that the syringes are safe is to boil them. They said that most of the highly competent and popular doctors boil syringes and use them. They also felt that boiling the syringes cleans them from all germs and injections are safe if given after boiling syringes. Quite a few patients said that safe injection practices include cleaning the area with spirit swab.

Intervention Group (Post Advocacy)

Patients said that syringes should never be reused. Once a syringe is used on a patient, it should be cut with a needle cutter if available. If a needle cutter is not available, the needle should be broken and syringe should never be boiled but rather thrown away in a waste. They said that they try to ensure that the injection should be given by the doctor and not the dispenser and that the doctor should dispose off the syringe by breaking the needle and cutting the syringe.

6. "Use of new packed syringe"

Baseline (Intervention and Control) and Control (Post Intervention)

Patients said that although boiled syringes can be used some of the patients said they insisted on having a new syringe for the injection. In most cases, new syringes were provided by the dispenser and they were unaware of whether the dispenser actually used a sealed packed new syringe or not, because he would get the syringe from inside his room. Even if the patient would have bought the syringe from the medical store and gave the same to the dispenser. He would generally take the syringe inside

his room and come out with an already opened syringe. They never questioned the dispenser about it.

Intervention Group (Post Advocacy)

The patient in this group insisted on buying a newly packed syringe from the medical store.

"*We try to stay away from the dispenser"*

The patients insisted on the doctor to give them the injection and even if the dispenser gave the injection, they made sure that a sealed packed syringe was opened in front of them and not inside the room. They generally faced resistance by the dispenser in this context, however they felt their health was a priority and they would argue. They also made sure the syringe and needle were disposed off in an appropriate manner with the needle and syringe being cut, using the needle cutter or other wise.

7. "Knowledge about Hepatitis A, B, C and HIV/AIDs"

Baseline (Intervention and Control) and Control (Post Intervention)

Most of the people had not heard about hepatitis A, B and C. Though they had heard of hepatitis per se, they were not aware of the different types of hepatitis like A, B and C. Though many patients had heard about HIV/AIDs, about it being a dangerous illness and life threatening. This information was chiefly obtained through television.

Intervention Group (Post Advocacy)

Patients said that hepatitis was of different types and it was a very dangerous illness in which the liver was involved and sometimes even lead to cancer. There is generalized yellow discoloration of the skin, anorexia and the patient starts loosing weight. The

liver stops functioning. HIV/AIDs on the other hand is even more dangerous and results in death. Patients resistance to infection decreases and various other infections easily affect the patient. The patient with hepatitis starts loosing weight, becomes weak and death soon occurs.

8. "Mode of spread of Hepatitis and HIV/AIDs"

Baseline (Intervention and Control) and Control (Post Intervention)

Most of the patients were not aware of how hepatitis and HIV/AIDs spread, except that it spreads from one person to another. Many said that HIV/AIDs spread from one person to another through unethical sexual practices and some mentioned reuse of syringes from a patient who is affiliated with HIV/AIDs. However, the mode of spread of hepatitis was not well known.

Intervention Group (Post Advocacy)

Patients mentioned that both hepatitis and HIV/AIDs spread through unethical sexual practices and reuse of syringes from a person who already has hepatitis and HIV/AIDs. Both these diseases were also transmitted by blood transfusion of the infected blood or from a pregnant mother to a newborn, if the mother is infected with hepatitis or HIV/AIDs. Some patients mentioned sharing of blades from an infected person.

Discussions

Injections given in formal and informal health care settings are probably one of the most common percutaneous procedures worldwide. An injection is defined as "a skin piercing event performed with a syringe and needle with the purpose of introducing a curative substance or a vaccine into a patient by intramuscular, intravenous or subcutaneous route" (3). An estimated 12 billion injections are administered every year, 90% of them being curative injections (1,2). Until the end of World War I, hypodermic syringes were handmade individually from glass and metal. However, after World War II injection use increased with the introduction of insulin and penicillin. On one hand, the global production of syringes increased while at the same time, the unit price of syringe decreased. With time insulin and penicillin therapy became synonymous with injections. At that time, though oral antibiotics were under development, they were less absorbed. Hence, at that time most antibiotics were available only in the parenteral form (16). The increased demand for injectable antibiotics led to development of mass production of inexpensive single use syringes (17,18). Sterilizable glass and metal syringes were now replaced by disposable syringes. Global production of syringes increased injection use, both in the formal and informal sector and a culture of untrained "injection doctors" started to flourish. The link between unsafe injections and blood borne infections quickly became apparent when an outbreak of malaria amongst British soldiers who were being treated for syphilis, took place in 1917 (19). Negative pressure generated in the syringe when the needle is removed, leads to contamination from infected blood, if the syringe is reused. Blood borne infections are on the rise especially in developing countries secondary to unsafe and unnecessary injections. It is estimated that 8–16 million hepatitis B infections, 2–4.5 million hepatitis C infections and 80,000–160,000 HIV/AIDs cases may be caused by reuse of syringes and needles without sterilizations annually world wide. Together these illnesses account for 1.3 million deaths and 23 million years of lost life (3).

Data from Pakistan shows that HCV antibody sero-prevalence in the general population to be 6.5% and 31% sero-prevalence of HBV core-antibodies (10). On the other hand another study conducted in cases of hepatocellular carcinoma in Karachi showed 67% were positive for HBV infections and 33% for HCV infections (20). Another study from

Rawalpindi in patients with cirrhosis, showed 28.5% to be positive for HBs Ag and 68% for anti-HCV antibodies (14). Both Luby et al and Khan et al reported that patients having received more then 5 injections in the past decade were more likely to be infected with HCV antibodies (10, 12).

Unnecessary injections are common in Pakistan and the frequency of injections given per patient per annum in Pakistan (8.5) is one of the highest in the world (3). In our base line data, 76-84% patients visiting a HCP in a typical urban slum, had received injections therapy. This is in keeping with other such studies conducted in Pakistan and other developing countries, where unnecessary injection expose patients to the risk of blood borne pathogens. The common conditions cited both by the patients and HCP's included minor illnesses like vomiting, diarrhea, pain, fever, cold, cough. No life threatening conditions were mentioned by either HCP's or patients. Use of injections to treat weakness was mentioned both by patients and GP's. This is keeping in view with the trends in other developing countries including India, Tanzania (8,7). Injectable I/V fluids were specially mentioned by 45% HCP's as being indicated to give strength in case of weakness. Khan et al in their study in Karachi, also found acute respiratory infections, gastroenteritis and generalized weakness to be the chief indications for injection therapy (12). It is interesting to note that though 77-88% patients reported receiving injections, HCP's reported slightly lower percentage (63%).

Injections are prescribed both in the public and private sectors. However, considerably more injections are prescribed in the private sector than in the public sector, even though the spectrum of diseases dealt in both the sectors may be the same. One of the reasons for this is that private practitioners need to satisfy their patients to ensure more followup visits, and hence try to create an atmosphere of dependence upon injections. As long as private practitioners practice administration of injections as being necessary to attract and retain patients, the practice of unnecessary injections will continue. It is said that only 5 – 20% of patients prefer injections over oral medication. However, this leads the prescriber to believe that all patients prefer injections and therefore they prescribe injections to 80-95% patients (21). This view was very strongly expressed by patients in the IGDs who said that HCPs prescribe injection for each and every illness, so much so that they are

mentally prepared to receive an injection whenever they consult a doctor. Patients said "doctors have made us dependent upon injection and we mentally feel we will not get well unless we are given injections". Many patients in the focus group discussions said that they feel more satisfied if the doctor prescribes injections rather than oral medications. On the contrary Health Care Providers (HCPs) said that it is the patients who demand injection and if they do not prescribe injections, their patients then do not come back to them and consult other nearby clinics, where injections are prescribed. "Hence we succumb to patients demand and give injections to compete with are colleagues".

Thus, an atmosphere of mistrust exists between the patients and HCPs, and efforts are needed to clear this misunderstanding. Many patients are open to other alternate means of treatment and interventions are needed in this directions. However, the intervention designed should keep in perspective the specific cultural and social reasons for injection demand. This is specially true in the private sector, where unnecessary injections are given on the one hand succumbing to patient's demand and at the same time HCPs use this as an excuse to attract more patients. One of the more effective intervention strategies is Interactive Group Discussions (IGDs) recommended by the (INRUD) International Network on Rational Use of Drugs. (Indonesia) (15). It has been estimated that IGDs resulted in 30% reduction in injection use in Indonesia, leading to reduction of 2753304 DALYs (22). An exchange of view between prescriber and patients through IGDs, helps in clarifying many misunderstanding and are effective in decreasing injection overuse.

We conducted IGDs between patients and HCPs facilitated by a Research Officer in the clinic of the HCPs separately for the males and females. IGDs were supplemented with IEC material as mentioned previously.

Most patients said that injections are given by HCPs for even minor illnesses and it was an excepted norm that injection will be prescribed invariably by the doctor. One of the very important reasons cited by the most patients and doctors was that injections are effective in providing early recovery. According to HCPs, most patient being daily wagers

cannot afford to sit at home for days, and feel that injections will provide quick relief from symptoms. This view was expressed by more than 90% patients at the base line survey. According to many patients this belief that injection provides rapid relief was inculcated in their minds by doctors. Majority of male patients are keen to get back to work, while females have to look after children and their household. As the patients said, the doctors tell them that the only way to early recover is to take injections. Prescribers also identified "early recovery" as a key factor for increased injection use, but they put the onus of injection demand on patient's insistence. It was interesting that oral medication was associated with prolonged treatment which was less effective. The concept of a strong medicine being injected into the blood has been reported in other studies as well (23,24).

A study conducted in the Mwanza Region of the United Republic of Tanzania showed that 70% of injections were unnecessary and chiefly due to lack of knowledge of prescribers, whereby most injections were given for minor ailments or to give strength to patients. The IGDs brought forth the argument that though patients and HCPs both are aware of alternate forms of treatment, (oral medication), prescribers do not encourage them to try oral medication and promote injections. "Early Relief" being capitalized to promote unnecessary injections. The uneducated and unaware patients concerned only with relief of their symptoms, tend to follow the instructions of HCPs. The discussion on the financial benefit to the provider was touched upon by some aggressive patients, and had to be handled sensitively. But the issue was strongly brought forth, and seemed to be a major factor in HCPs promoting unnecessary injections for minor illnesses or for weakness. Injection use in the private sector has different implications than in the public sector where financial benefit to the HCPs is not relevant. HCPs in the private sector are in strong competition with their colleagues, make every effort to satisfy patient demand and keep a follow up clientele. Although, they might have the knowledge, they do not necessarily pass it on to their patient. The issue regarding the use of injection to prevent weakness and give strength was repeatedly raised. Use of multivitamin and dextrose water was very common.

Patients felt that prescribers had tuned the minds of the patient by repeatedly passing the message that incase of any illness or generalized weakness multivitamin injections or i/v drips was the only way to gain any energy. This message had been passed repeatedly over several years, hence patients were unable to consider any alternative of obtaining energy. HCPs felt that patients walk in the clinic demanding injections to give them strength. Not succumbing to patients demand, would deprive them of their clientele. A healthy discussions on the role of nutritious food and oral multivitamin tablets ensued. People conceive nutritious food to be part of their daily routine and not something for which they need to consult a prescriber. Also multivitamin tablets are easily available in the medical store and patients can easily purchase them without the doctor's prescription. Patients expect something more if they pay to get consultation from a health care provider. It also gives an impression on the serious nature of the illness and makes the patient feel that concrete steps are being taken to treat them. This again is more true in the private sector then in the public sector. Similar instances have been reported from Thailand and other countries whereby successful informal health care providers build their practices on injecting multivitamins (25).

Before intervention, very few patients were aware of disadvantages of injections and mainly quoted pain (3-8%), adverse reaction (15-20%), swelling (13-20%) and abcess (10-18%). Interestingly when HCPs were generally asked about disadvantages of injections, before intervention and in the control group they mentioned pain (45%), swelling (35%) allergic reaction (45-75%). They did not talk about hepatitis and HIV/AIDs. It was the post intervention group of HCPs who after undergoing IGDs promptly mentioned HIV/AIDs and hepatitis. This brings forth the important point that it is important to create awareness in the HCPs in the private sector who as opposed to the public sector are not much exposed to CME and are unaware of recent trends in medical field. Very few read journals (20%), old text books being their main source, do not talk about newer concepts. Personal experience (60-95%) accounted for most of their knowledge. Once being exposed having heard the message of SIGN Project Team, they were more responsive to knowledge about adverse reactions of injection therapy through others sources including seminar and media.

Interactive Group Discussions (IGDs) accompanied by IEC material were highly effective in preventing unnecessary injections, whereby injection prescribing had reduced to nearly 33% from baseline after intervention. This was chiefly due to reduced injection demand by patients as in the baseline and control 70-77% patients were demanding injections which came down to nearly 48.5% post intervention. The reduced demand of injection by patients was probably the result of awareness about the hazards of injection therapy, specially the risk of hepatitis and HIV/AIDs. Interestingly, patients did not associate hepatitis or HIV/AIDs with unnecessary injections, both at baseline and control, the knowledge of which increased to 16-20% post intervention. One of the key interventions to reduce injection use would be reduced injection demand by patients which can only come through awareness. Intervention studies in Tanzania have demonstrated the effect of health education of para medical staff, whereby unavoidable injections dropped from to 16 to 6% (26). The HCPs in the non intervention group also did not correlate the risk of hepatitis and HIV/AIDs with unsafe injections. This is in keeping with other studies in Pakistan by Khan et al (12) whereby only two out of 20 registered HCPs discussed hepatitis as a hazard of unsafe injections. Khan et al conducted their study in 1995 and there has not been much change in the awareness over the course of past 8 years. An important point brought forth by patients was lack of effort on part of HCPs to educate patients. Most patients complained that prescribers do not give adequate time to educate patients about alternate source of treatment and hazards of injection. In private health systems, HCPs tend to see as many patients as possible in a short span of time and consider health education to be a waste of time. HCPs on the other hand said that patients demand immediate relief "Patients do not like to listen to long lectures". The IGDs provided a forum for an open dialogue in a relaxed atmosphere. As in other countries eg. Indonesia, lack of communication between prescribers and doctors contribute to preconceived ideas in the mind of HCPs as to what patients wants. Both interaction between patients and HCPs can be achieved if HCPs spend more time explaining and communicating with patients about diseases and their rational treatment. In our intervention group counseling by HCPs improved from 5 to 20%, after they had an opportunity to interact in IGDs. Our results indicate that personal experience and information sharing by friends and relatives was the main source of knowledge about injections. Media played a negligible role in educating patients

on hazards of injections. As is obvious, the information provided through friends and relatives is not very accurate and may result in misconceived notions about injection hazards. It is important that patients be provided the right information in a convincing manner, so that any misunderstandings in the minds are removed. In Pakistan cultural setup, patients tend to trust their private HCP, (who has treated their whole family for generations) more than any other source of health education. In countries like Pakistan any information provided by media or any other source is always first confirmed by the patients from their family physician (HCP). Hence, private HCPs are an important source to provide the right information on injection safety and bring about a change in perspective.

One of the important components of safe injections is proper sterilization of injection equipment with the doctrine of one sterile syringe and needle for each patient (27).

However, reuse of syringes and needles is common in developing countries and it is said that four out of five disposal syringes are reused (24) HCPs in developing countries utilize improper sterilization procedures and have inadequate facilities for sharp waste disposal, leading to high transmission of blood borne pathogens. In the IGDs and FGDs most patient said that boiling of syringes was the most effective way to ensure safe injection. In their observation most of the highly competent HCPs boiled syringes. According to them some doctors guided them, that simply changing the needles was adequate to render the injection safe. The patient were completely unaware that boiled syringes were not safe, and considered it a routine procedure that the same syringe be reused on 8–10 patients. Infact, prescribers had never advised them to ensure that a newly packed syringe be always used whenever they are injected.

Whereby the HCPs or their dispensers supposedly provided new syringes for injection purposes in nearly 85-90% patients, the key issue was that the syringe used was not packed. In the control group 64% patients said they were given injections using packed and sealed syringe according to the dispenser, but in only 55.6% did the dispenser actually open the packed syringe in front of the patient. In the clinics of the HCPs the dispensers shows the patient the packed syringe and then takes the syringe inside a small

injection room emerging with a filled syringe. The patient is generally unaware whether a new packed syringe was used or whether the dispenser reused a syringe. IGD's helped raised awareness of the patients and post intervention nearly 50.6% patients themselves bought the syringe from the medical store and preferred that the injection be given by the doctor rather than the dispenser. The most significant fact being that 83% patients in the intervention group insisted upon the HCP that packed syringe should be opened and filled with the injectable in front of them. In the IGD's most patients mentioned that dispensers keep the packed syringes or needles with themselves and sell off reused syringe for repacking. The HCPs acknowledged the presence of an injection mafia but absolved themselves of the responsibility, mainly implicating the dispensers in this. The common practice in the clinic prior to intervention and in the control group was to throw away the needles and syringes in the waste (77%). This practice changed to the use of needle cutters in 72% intervention HCPs. Needle cutters per se, are not seen at all in the clinics of HCPs. Needles and syringes scattered around were seen in nearly 25% clinics of HCPs before intervention. Similar observations have been noted by Khan et al. Janjua et al reported that throwing syringes in the wastebin or open space is the commonest method of sharp waste-disposal (28). Lack of effective waste disposal is an important avenue for transmission of blood borne infections. According to WHO and UNICEF, disposable syringes and needles should only be used if their destruction after single use is recommended. Recycling and repacking of disposable syringes is common in many Asian and African countries. Sharp waste disposal is a major problem in many African countries including Cameroon, Chad, Senegal (29), where in many health center facilities safe–disposal of sharp waste is not available. Incomplete disposal of sharp waste can not only lead to accidental needle stick injuries but also allows for reuse, resale and recycling of contaminated sharp waste. The introduction of one time use auto-disposable (AD) syringes recommended by WHO has been effective in reducing transmission of pathogens. These AD syringes are presently being used for immunization purposes in many countries and in 1999 WHO, UNICEF and UNFPA issued a joint statement recommending all countries use only AD syringes for vaccination by end of 2003 (30,31). The target has not yet been achieved in some countries including Pakistan, where more intensive efforts are needed to introduce AD syringes aiming to make Health Care Providers and workers more comfortable in using this equipment.

Amongst the various interventions designed to reduce unnecessary injections and promote safe injections practices, Interactive Group Discussions (IGD's) first initiated in Indonesia, through INRUD, were effective in reducing injection use by 30% patients (1,5). Translating this to the projected burden of disease, would lead to a reduction of 2753304 (DALY) (22). Injection practices are dependant upon socio-cultural practices and patients perceptions about effectiveness of injection therapy. The perception of injections as an effective means of therapy has been influenced by prescribers especially in the private sector. Prescribers also have the misconceptions about the overwhelming demand of injection by patients. IGD's are extremely effective in addressing the discrepancy between patients and prescribers beliefs. In Indonesia IGD's were first implemented as a controlled trial in 24 public health facilities in a selected district. The overwhelming impact resulted in adaptation and replication of this strategy in 44 Public Health Centers in 2 provinces in 1997. Efforts are presently underway to replicate this strategy nation wide. Interventions in public health care settings are different than the approach needed for the private sector. Most useful injections are administered in hospitals, dispensaries and clinics of the public sector. More injections are administered in the private sector than in the pubic sector although the spectrum of disease is the same in both sectors. Private sector HCPs face the challenges of patient's satisfaction to ensure future clientele. Financial benefits play an important role in prescribing injections. Patients accessing the private sector expect prompt recovery as they are paying to get treated. Patients perceive injection therapy to indicate the seriousness of their illness and expect private practitioners to adopt treatment measures including injections, which indicates that the HCP is taking their illness seriously. IGD's in the public and private sector may have different implications Private prescribes are more uncomfortable in directly interacting with a group of patients on such sensitive issues. In addition, in private health care settings, it is difficult to have more than one prescriber per IGD. The concept of a group of prescribers interacting with a group of patients can only work in the public sector. Private prescribers are very possessive about their patients and would not want their clients to interact with another competing HCP. In some IGD's though the atmosphere turned hostile initially it was then moderated, overall an open discussion ensued between prescribers and patients. At the end of IGDs many prescribers were comfortable interacting openly with their group of patients.

Presently, two other groups are using the strategy of IGDs to reduce injection overuse. In Cambodia, the public sector is being targeted in Kompong Cham and Phnom Penh. The baseline data indicates injection prescription to be 77-82% in Kompong Cham to 97% in Phnom Penh. The impact is to be determined in a post intervention assessment (32). In Tanzania, a randomized clinical trial utilizing IGD's is being conducted both in private and public health facilities in Dare-es-Salaan. The interactive group discussions are still undergoing and results are awaited (33).

In our intervention we targeted the private sector, HCP's and patients. The IGD's were supplemented by provision of IEC material, to raise awareness in patients about hazards of injection as well as to provide an opportunity of CME to prescribers. Injection use was reduced by 37%. Similarly only one–third of the patients quoted injections as being critical to their satisfaction with the treatment prescribed. In Pakistan 80% of the population frequents the private sector. Prescribing practices in the private sector need to be altered simultaneously accompanied by altering patient behavior. The critical question is how can these activities be scaled up nationally.

Injection safety is an important component of the National Health Policy in Pakistan. However, few concrete measures have been taken to implement injection safety, even in the public sector. One of the components of the SIGN strategy is to implement safe injection strategies at the national policy level through political commitment. Advocacy forms an important component of this strategy. The combination of IGD's and IEC material is an important advocacy tool. The SIGN strategic framework calls for "Innovation in Approaches". This Pilot Project, utilizing Interactive Group Discussions supplemented by IEC can form the basis of an intervention strategy to be implemented nationally both in the public and private sector. Implementation can take place initially within small districts in various provinces. A group of Master Trainers comprising of social scientists and doctors can train core teams of implementation at the Provincial level. IGD's can then be conducted in defined private sector populations as well as the public sector. Many health care providers in the public sector also work as private health care providers in the evening. However, this needs to be complemented by mass media information dissemination. The media revolution can be innovatively utilized to get health messages across to the general population Radio talk shows with prescribers and

patients can be aired to reach a large audience. Live coverage of IGD's both by radio and television with active participation by patients and prescribers can help in clearing many misconceptions not only in the minds of the actual participating patients but also many prospective general patients in the population. Live calls can also be accommodated whereby patients from the population can directly interact with the prescribers on the television or radio. IGD's can thus be brought out from the confines of small clinics to the mass population.

The ultimate objective of the SIGN network and its participating members is prevention of bloodborne pathogens transmission and other adverse effects of poor injection practices through safe injections and reduction in injection overuse. The IGD strategy implemented in Pakistan as a Pilot Intervention effectively demonstrated the impact in the private sector. It will be interesting to compare these results from other countries.

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Annexure

Pilot Intervention on Safe Injection in the Informal Sector of Karachi

Questionnaire for Exit Interviews of Patients

HOPE – SIGN – (WHO) PROJECT

Serial ☐☐☐☐

Name _____

Father/Husband Name _____

Age in years ☐☐

Sex M/F ☐

Address _____

Area ☐

Q1. What is your Marital Status?

1. Married
2. Unmarried
3. Widow/Widower
4. Divorced

Q2. Ethnic Group

1. Sindhi
2. Punjabi
3. Balochi
4. Pathan
5. Muhajir
6. Others

Q3. Qualification

1. Uneducated
2. Primary
3. Secondary
4. Middle
5. Matric
6. Inter
7. Graduate
8. Post Graduate

Q4. Occupation

1. Unemployed
2. Officer
3. Store keeper
4. Professional
5. Teacher
6. Clerk
7. Driver
8. Daily Wages
9. House wife
10. Chaukidar
11. Labour
12. Student
13. Home industry

Q5. Income (Rs.)

1. < 2000
2. 2001-4000
3. 4001-5000
4. 5001-8000
5. 8001-10000
6. >10000

Q6. Are you a regular patient of the doctor? Y/N ☐

Q7. If yes, since when are you a regular patient of this doctor?

1. 1 Month
2. 2 Months
3. 3 Months
4. 6 Months
5. 1 Year
6. 2 Years
7. >2 Years

Q8. Is this your first second or third visit for this ailment?

1. First visit
2. Second visit
3. Third visit

Q9.If second or third what treatment did you receive before?

1. _____
2. _____
3. _____

Q10. What treatment have you received now?

1. _____
2. _____
3. _____

Q11. When did you last receive an injection from the doctor?

1. Last seven days
2. Last fifteen days
3. Last one months
4. Last two months
5. Last three months

Q12. Was the injection given by the doctor or did you ask for it?

1. Doctor
2. Self

Q13. If the doctor gave the injection did he give any reason for it?

1. _____
2. _____
3. _____

Q14. If you asked for the injection what was the reason?

1. _____
2. _____
3. _____

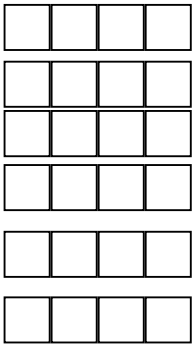
Q15. Did you ask the doctor for other modes of treatment other than injection? Y/N

Q16. What was his response?

1. _____
2. _____
3. _____
4._____

Q17. What was the cost of the treatment?

1. Travel
2. Doctors Fee
3. Injection cost
4. Drip Cost
5. Others
6. Total



Q18. For which condition should an injection be given?

Q19. Who provided you the syringe?

1. Doctor
2. Medical Store
3. Dispenser

Q20. If doctor or dispenser?

1. Was the syringe new or old? Y/N
2. If new was it packed? Y/N
3. If packed was it opened in front of you? Y/N

Q21. Who administered the injection?

1. Doctor
2. Dispenser
3. Staff Nurse
4. Others

Q22. What precautions were taken before administering the injection?

Q23. What was done with the syringe?

1. Cut with the needle cutter
2. Thrown in the waste basket
3. Only needle removed and syringe kept
4. Others

Q24. What are the advantages of injection?

1._____2._____3._____
4._____5._____6._____

Q25. What are the disadvantages of injections?

1._____ 2._____
3._____ 4._____
5._____ 6._____

Q26. Where did you get this information?

1.	Doctors	Y/N
2.	Relatives	Y/N
3.	Friends	Y/N

4. Personal Experience Y/N
5. News Papers Y/N
6. Radio Y/N
7. Television Y/N

Q27. Have you ever received a drip? Y/N ☐

Q28. For which condition?

1. _____2. _____3._____

Q29. Do you know in which other conditions a drip should be given?

1. _____2. _____3._____

Q30. Where did you get this information?

1. Books Y/N
2. Seminars Y/N
3. Journals Y/N
4. Personal Experience Y/N
5. Media Y/N
6 Radio Y/N
7. TV Y/N

Q31. What are the advantages of drip?

1._____ 2._____
3_____ 4._____
5._____ 6._____

Q32. What are the Disadvantages of drip?

1._____ 2._____

3._____ 4._____

5._____ 6._____

Q33. Where did you get this information?

1. Books Y/N
2. Seminars Y/N
3. Journals Y/N
4. Personal Experience Y/N
5. Media Y/N
6 Radio Y/N
7. Television Y/N

Q34. Have you heard about Hepatitis A, B, and C & HIV?

1. Hepatitis A Y/N
2. Hepatitis B Y/N
3. Hepatitis C Y/N
4. HIV transmission Y/N

Q35. If yes how it is spread?

Q36. Where did you get this information from?

1. Books Y/N
2. Relatives Y/N
3. Friends Y/N
4. Personal Experience Y/N
5. News Papers Y/N

6. Radio Y/N
7. Television Y/N

Q37. Are you satisfied with the doctor's treatment? Y/N

Q38. Are you more satisfied with treatment if the doctor gives an injection? Y/N

Q39. What in your opinion should be included in a good quality treatment?

1._____2._____3._____

Q40. What precautions do you think should be taken before administering injections?

1._____2._____3._____

Pilot Intervention on Safe Injection in the Informal Sector of Karachi

Questionnaire for Health Care Providers (HCPs)

HOPE – SIGN – (WHO) PROJECT

Serial ☐☐☐

Name _____

Father/Husband's Name _____

Address_____

Area ☐

Qualification	MBBS …	1.Yes 2.No 7.N/A	☐
	Post Graduate	1.Yes 2.No 7.N/A	☐
	Fellow	1.Yes 2.No 7.N/A	☐
	Member	1.Yes 2.No 7.N/A	☐
	Diploma …	1.Yes 2.No 7.N/A	☐
	Homeo …	1.Yes 2.No 7.N/A	☐
	Dispenser	1.Yes 2.No 7.N/A	☐
	Others (Specify) _____		☐

1. How many patients do you see in a day? ☐☐☐

2. What are the main diseases in the area?

1._____ 2._____
3._____ 4._____
5._____ 6._____
7._____ 8._____
9._____ 10_____
11._____ 12._____
13_____ 14._____
15._____

Diseas1 ☐ Diseas2 ☐ Diseas3 ☐ Diseas4 ☐ Diseas5 ☐

Diseas6 ☐ Diseas7 ☐ Diseas8 ☐ Diseas9 ☐ Diseas10 ☐

Diseas11 ☐ Diseas12 ☐ Diseas13 ☐ Diseas14 ☐ Diseas15 ☐

3. For which conditions do you give injections?

1._____ 2._____
3._____ 4._____
5._____ 6._____
7._____ 8._____

Inject1 ☐ Inject2 ☐ Inject3 ☐ Inject4 ☐

Inject5 ☐ Inject6 ☐ Inject7 ☐ Ijnect8 ☐

4. What is the percentage of patients who receive injections? % ☐☐

5. For which conditions do you give drips?

1._____ 2._____

3._____ 4._____

5._____ 6._____

7._____ 8._____

Drip1 ☐ Drip2 ☐ Dipr3 ☐ Drip4 ☐

Drip5 ☐ Drip6 ☐ Drip7 ☐ Drip8 ☐

6. What is the percentage of patients who receive drips? % ☐☐

7. In your opinion what are the conditions in which injections must be given?

1._____2._____

3._____4._____

5._____6._____

7._____8._____

Condinj1 ☐ Condinj2 ☐ Condinj3 ☐ Condinj4 ☐

Condinj5 ☐ Condinj6 ☐ Condinj7 ☐ Condinj8 ☐

8. In your opinion what are the conditions in which Drips must be given?

1._____ 2._____

3._____ 4._____

5._____ 6._____

7._____ 8._____

Condrip1 ☐ Condrip2 ☐ Condrip3 ☐ Condrip4 ☐

Condrip5 ☐ Condrip6 ☐ Condrip7 ☐ Condrip8 ☐

9. What are the advantages of injections?

1._____ 2._____

3._____ 4._____

5._____ 6._____

Advinjec1 ☐ Advinjec2 ☐ Advinjec3 ☐

Advinjec4 ☐ Advinjec5 ☐ Advinjec6 ☐

10. Where did you get this information from?

Books Y/N ☐ Seminars Y/N ☐ Journals Y/N ☐

Personal Experience Y/N ☐ Newspapers Y/N ☐ Radio ☐
Y/N

Television Y/N ☐

11. What are the disadvantages of injections?

1._____ 2._____

3._____ 4._____

5._____ 6._____

Disadinj1 ☐ Disadinj2 ☐ Disadinj3 ☐

Disadinj4 ☐ Disadinj5 ☐ Disadinj6 ☐

12. Where did you get this information?

Books Y/N ☐ Seminars Y/N ☐ Journals ☐ Y/N

Personal Experience Y/N ☐ Newspapers Y/N ☐ Radio Y/N ☐

Television Y/N ☐

13. What are the advantages of Drips?

1._____2._____

3._____ 4._____

5._____ 6._____

Advdrip1 ☐ Advdrip2 ☐ Advdrip3 ☐

Advdrip4 ☐ Advdrip5 ☐ Advdrip6 ☐

14. Where did you get this information?

Books Y/N ☐ Seminars Y/N ☐ Journals ☐ Y/N

Personal Experience Y/N ☐ Newspapers Y/N ☐ Radio Y/N ☐

Television Y/N ☐

15. What are the disadvantages of Drips?

1._____ 2._____

3._____ 4._____

5._____ 6._____

Disadrip1 ☐ Disadrip2 ☐ Disadrip3 ☐

Disadrip4 ☐ Disadrip5 ☐ Disadrip6 ☐

16. Where did you get this information?

Books Y/N ☐ Seminars Y/N ☐ Journals ☐ Y/N

Personal Experience Y/N ☐ Newspapers Y/N ☐ Radio Y/N ☐

Television Y/N ☐

17. Are there any risks associated with injections?

Hepatitis A Y/N ☐ Hepatitis B Y/N ☐

Hepatitis C Y/N ☐ HIV transmission Y/N ☐

Allergic reactions Y/N ☐ Others (specify) _____ ☐

18. Where did you get this information?

Books Y/N ☐ Journals Y/N ☐

Seminars Y/N ☐ Other Doctors Y/N ☐

Personal Experience Y/N ☐ Others Y/N ☐

19. Have you come across any patients of HBV or HCV here? Y/N ☐

20. What advice do you give them?

1._____ 2._____

3._____ 4._____

Advice1 ☐ Advice2 ☐

Advice3 ☐ Advice4 ☐

21. Do Patients demand Injections? Y/N ☐

22. What percentage of patient demand injections? % ☐☐

23. If yes, why do you think patients prefer injections to other modes of treatment?

1._____ 2._____

3._____ 4._____

5._____ 6._____

Prefinj1 ☐ Prefinj2 ☐ Prefinj3 ☐

Prefinj4 ☐ Prefinj5 ☐ Prefinj6 ☐

24. Do patients demand Drips? Y/N ☐

25. What percentage of patient demand Drips? % ☐☐

26. Do you think injections are more effective than oral medication? Y/N ☐

27. If yes for which conditions?

1._____ 2._____

3._____ 4._____

5._____ 6._____

Cond1 ☐ Cond2 ☐ Cond3 ☐

Cond4 ☐ Cond5 ☐ Cond6 ☐

28. Any specific group demands injections/drips?

Men Y/N ☐ Women Y/N ☐

Children (Other than immunization) Y/N ☐ Educated Y/N ☐

Uneducated Y/N ☐ Elderly Y/N ☐

29. What do you do when patients who do not need injections demand it?

1. _____2._____

Deminj1 ☐ Deminj2 ☐

30. What do you do with your sharp waste?

1. _____2._____

Shrpwst1 ☐ Shrpwst2 ☐

31. In your opinion what should be done to ensure safe injection practice?

1._____2._____ 3._____

Safeinj1 ☐ Safeinj2 ☐ Safeinj3 ☐

32. Does the prescription of injection have an effect on the status, income or popularity of prescribers among patients or colleagues?

1._____ 2._____

3._____

Effect1 ☐ Effect2 ☐ Effect3 ☐

33. If you prescribe an injection instead of oral medication, do you give?

More Time Y/N ☐

Better Follow-up Y/N ☐

34. Is there any difference in the cost of the visit if the injection is prescribed? Y/N ☐

Observations:

1. Needle Cutter Y/N ☐
2. Disposable Syringes Y/N ☐
3. Adequate Staff Y/N ☐
4. Cleanliness Y/N ☐
5. Needle or Syringes lying scattered Y/N ☐

Pilot Intervention on Safe Injection in the Informal Sector of Karachi

Questionnaire for Interactive Group Discussions (IGDs)

HOPE – SIGN – (WHO) PROJECT

Q1. What do you know about Hepatitis A, B, C and HIV/AIDs?

Probe for

a. What are its symptoms
b. Anything else
c. Are these disease dangerous
d. How
e. Can they prove to be fatal

Q2. How do these disease spread?

Probe for

a. Anything regarding re-use of syringe
b. How
c. Anything else
d. Anything regarding used needles
e. How
f. Anything else
g. Transfusion of affected persons blood
h. Unethical sexual practices

Q3. For what conditions do you usually receive injection?

Probe for

a. Flu, cold or fever
b. Diarrhoea, vomiting
c. Pain
d. Weakness
e. Anything disease apart from the above ones

Q4. Why do you get injections?

Probe for

a. Quick mode of action
b. To give strength
c. Less-expensive
d. Early relief
e. Good recovery
f. Patients demand injections
g. Why
h. Doctors prescribe injections
i. Why
j. Who compels you to get injections

Q5. Apart from injection what can be other modes of treatment

Probe for

a. Which alternate modes
b. Are they better or worse
c. Why

Q6. What do you know about the advantages and disadvantages of injection?

Probe for

a. Anything in context with reuse of syringe
b. How and why
c. In context to reuse of needle
d. How and why
e. In context with infected blood
f. Anything else

Q7. What should be done to stop mis-use of injection and syringes?

Probe for

a. Doctors role
b. Stopping of un-necessary injections
c. Proper disposal of used syringes
d. Anything else (like syringes cutter)
e. Patient's role
f. Use of new and packed syringes
g. Anything else.

Pilot Intervention on Safe Injection in the Informal Sector of Karachi

Questionnaire for Focus Group Discussions

HOPE – SIGN – (WHO) PROJECT

Objectives of the Focus Group Discussions

(a) To determine peoples perception of injection over prescription

(b) To understand peoples perception of injection safety (Re-use of syringe)

1 .Is there any specific reason why you visit a family doctor you go to?

2. Why not any other doctor?

3. What treatment does he usually prescribes?

Probe for

(a) Frequency of injections/drips in his treatment

(b) Satisfaction of the patient with treatment

(c) Reason for being satisfied (in relation to prescription of injection/drips) with treatment

4. Does your doctor explain the need for injection/drip to you?

5. Are there any specific conditions for which your doctor gives injection/drips?

Probe for

(a) Conditions for which injections/drips usually prescribed

(b) Alternate treatment can also be given for that condition

6. Do you prefer injections/drips for every condition?

Probe for

(a) Conditions for which they have received injections/drips

(b) Alternate treatment for these conditions is known by them

7. What may be the advantages/disadvantages of injections/drips?

8. What risks may be associated with injection/drip administration?

Probe for

(a) HBV, HCV, HIV

(b) Spread of these disease (in relation to syringe/needle).

9. What precautions should be taken before administration of injections/drips?

Probe for

(a) Personal experience

(b) Observation

10. Does the injection/drip provider use new syringes/cannula?

11. Are they opened in front of you?

12. What happens to them after they are used?

Probe for

(a) Presence of needle cutter in the facility

(b) Sharp waste management (in relation to syringe/needle).

13. Do you think that the doctors over prescribe injections/drips?

14. Do you think used syringes are reused in the health facility you visit?

15. What should be done to overcome the problem of over prescription of injections/drips and reuse of syringes/needles/cannula?