



Injection practices among medical practitioners working at private clinics in Karachi.

Shair Muhammad Hazara
BSc N, MSBE
Nursing Instructor
College of Nursing, PIMS, Islamabad

Acknowledgement
Muhammad Tahir Yousafzai



Introduction



- Injection therapy was first introduced to the developing world with the mass campaigns against yaws and kala-azar in the 1920s,
 - and became widespread after the Second World War following the introduction of penicillin ^[1].
- WHO estimate **95 % injections** are used for **curative care**, **3% for immunization**, **1% injectable contraceptive** and **1% blood injection and blood products**^[2].
- Injection unnecessary and unsafe practices results in a major route of transmission for hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV) ^[3].

1. Kermode, M., et al., *Safer injections, fewer infections: injection safety in rural north India*. Trop Med Int Health, 2005. 10(5): p. 423-32.

2. WHO and *Factsheet N° 23; Injection safety*. Revise 2006.

3. Yan, Y.W., et al., *Prevalence of injections and knowledge of safe injections among rural residents in Central China*. Singapore Med J, 2007. 48(8): p. 769-74.





Introduction



- Other complications of unsafe injections include infection with HIV, abscesses, septicemia, malaria, and viral hemorrhagic fevers^[1, 5].
- Different health care providers e.g. quacks, paramedics and TBA are prefer the use of injection as compare of oral medications .
- Therapeutic injections in Sindh are mostly provided at general practitioner (GP) clinics (63%)
 - and are most frequently administered by unqualified drug dispensers (75%) at these clinics*.



*Naveed Z. Janjua, Aamir J. Khan, Arshad Altaf . (2006). Canadian International Development Agency (CIDA).





Global data



- **16 billion injections** are given annually*
- Each year, unsafe injection practices cause *
 - ✓ **21 million hepatitis B infections** (33% of new cases)
 - ✓ **2 million hepatitis C infections** (42% of new cases)
 - ✓ **260 000 HIV/AIDS infections** (2% of new cases)
- Up to **70% of injections** are given with reused syringes and needles in the developing world
- Over **70% of injections** are unnecessary in some regions

*Hutin et al,2003; Hauri et al,2004





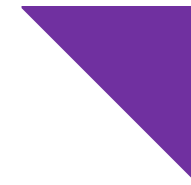
Global data

Disease burden Unsafe injection practices	Number *	% *
Hepatitis B virus	15 million	25%
Hepatitis C Virus	1 million	8%
HIV Infection	340,000	14%
Bacteraemia worldwide	3 million	7%
Injection site abscesses	850,000	----
DALYs	28 million	----

*SIGN 2010

Annual Meeting of the Safe Injection Global Network. 9 to 11 November 2010.





Global data

- Each year unsafe injections cause an estimated **1.3 million** early deaths ^[1].
- A loss of **26 millions** years of life^[1].
- An annual burden of **US \$ 600 million** in direct medical cost ^[2].
- In some developing countries, over **90%** of patients visiting a PHC provider receive **at least one injection** ^[3].
- An average of **3.4 injections** per person per year ^[3].

1. Altaf, A., N.Z. Janjua, and Y. Hutin, *The cost of unsafe injections in Pakistan and challenges for prevention program*. J Coll Physicians Surg Pak, 2006. 16(9): p. 622-4.

2. Miller, M.A. and E. Pisani, *The cost of unsafe injections*. Bull World Health Organ, 1999. 77(10): p. 808-11.

3. Safe Injection Global Network (SIGN) report 2003. www.injectionsafety.org





Pakistan data



- Pakistan is a populated country with **185 million** at ranked **6th number** among world population ^[1].
- SIGN, Pakistan has the highest frequency of injections worldwide range of **8.2 to 13.6** per person/ year ^[2].
- Average price of an injection (not the complete prescription) is **Rs. 20.6** (0.34 US dollars) ^[3].
- Pakistan would cost **92 million US dollars each year** with a high proportion for safe and appropriate use of injection.

1. PRB, *World Population Data Sheet*. Population Reference Bureau, 2010.

2. Safe Injection Global Network (SIGN) report 2003. www.injectionsafety.org

3. Altaf, A., N.Z. Janjua, and Y. Hutin, *The cost of unsafe injections in Pakistan and challenges for prevention program*. J Coll Physicians Surg Pak, 2006. 16(9): p. 622-4.





Pakistan data

- Hepatitis C infected were **8.2 times** more likely to receive more than **5 injections** ^[1]
- **93% of injections in the private** sector are unnecessary ^[2]
- **75%-94% of injection equipment** in the private sector is reused ^[2]
- **12% of injections in the government** sector are reused ^[2]
- **53% of new hepatitis B infections** are attributable to therapeutic injection reuse ^[2].

1. Luby SP, et al. The relationship between therapeutic injections and high prevalence of hepatitis C infection in Hafizabad, Pakistan. *Epidemiol Infect.* 1997 Dec;119(3):349-56.

2. Ministry of Health Survey 2002 : Pakistan Fact List





Pakistan data

- ❑ **Odds of having infection** (relative to those who have received injections)
 - **6.5 times higher for hepatitis C if 10 injections** received in past 1 year ^[1].
 - **6.7 times higher for hepatitis B if 01 injections** received in past 6 months ^[1].

1. **Epidemiological studies from 1997-2003**





Methods



- **STUDY DESIGN:**

A Cross Sectional Study

- **SETTING:**

Slum areas consisting of Majeed colony, Bilal colony, Mulimabad colony, Muzafarabad colony and Sherpao colony of Landhi town, Karachi.

- **DURATION OF STUDY:**


The study was carried out from **May 2006 to July 2006**





Methods



- **Whole population of one Union Council**
 - Total **407** private clinics located
 - **10** Practitioners exclude **< 1** year Experience
 - **317 / 397** (80%)
 - **Inclusion criteria**
 - **> 1** year experience
 - **Located** within boundary of UC Landhi
 - **Exclusion criteria**
 - **< 1** year experience
 - **Located out side** boundary of UC landhi
- 





Methods



- ***Data Collection***

- A structure questionnaire

- **Validity of Tool**

- Pilot tested on 20 medical practitioners (working outside area).
- **Inconsistency or ambiguities** (remove before administration)
- Revisited to the medical practitioners after one week, refill the questionnaire.



Results

Table 1: Descriptive characteristics of medical practitioners in Karachi, Pakistan (N=317)

Variables	N (%)
Work experience in years [mean \pm SD]	11.9 \pm 9
Ethnicity:	
Pashtu	110(34.7)
Panjabi & others	130(41.0)
Urdu speaking	77(24.3)
Years of schooling:	
10 year	40(12.6)
12 year	160(50.5)
14 year	82(25.9)
16 year	35(11)
Professional qualification:	
MBBS	25(7.9)
Registered Nurse	39(12.3)
Dispensers and others	225(70.9)
No professional qualification	28(8.8)
Hepatitis B completed vaccination:	67 (21.1)



Results

Table 1: Descriptive characteristics of medical practitioners in Karachi, Pakistan (N=317)

Variables	N (%)
Median number of injections administer per patient (range)	2 (1-3)
At least one sharp injury sustained in last one year	86(27.1)
Use of multi-dose vials for injections:	
Yes	220(70)
No	97(30)
Use of disposable syringe for each injection:	
Yes	80(25)
No	237(75)
Presence of separate container for sharps disposal:	
Yes	3(0.9)
No	314(99.1)
Disposal of sharps:	
Community bin	250(78.9)
Sewerage line	67(21.1)
Needle recapping	
Yes	277(87.4)
No	40(12.6)



Result

Table 2: Circumstances at the time of last sharp injury among medical practitioners in Karachi (N=86)

Variables	N (%)
Object of sharp injury:	
Syringe needle	50(58.8)
Stitching needle	15(17.6)
Surgical blade	10(11.8)
Drip set needle	10(11.8)
What leads to sharp injury:	
Needle recapping	40(47)
Patient movement	15(17.6)
Changing of needle	20(23.5)
During discarding in the bin	10(11.8)
Lighting with in clinic at the time of injury:	
Tube light	15(17.6)
Bulb	20(23.5)
Rechargeable emergency light	30(35.3)
Candle	20(23.5)





Result



Table 3: Prevalence of at least one sharp injury in the last one year among practitioners at clinics in landhi town, Karachi.

	Prevalence (95% CI)*		Total
	Male (n=277)	Female (n=40)	
At least 1 SI in last 1 yr	29.2(23.8-34.6)	10(1.0-19.0)	27.1(22.2-32)

* 95% Confidence Interval



Result

Table 4: Determinants of sharp injury among medical practitioners working in clinics at landhi town, Karachi.

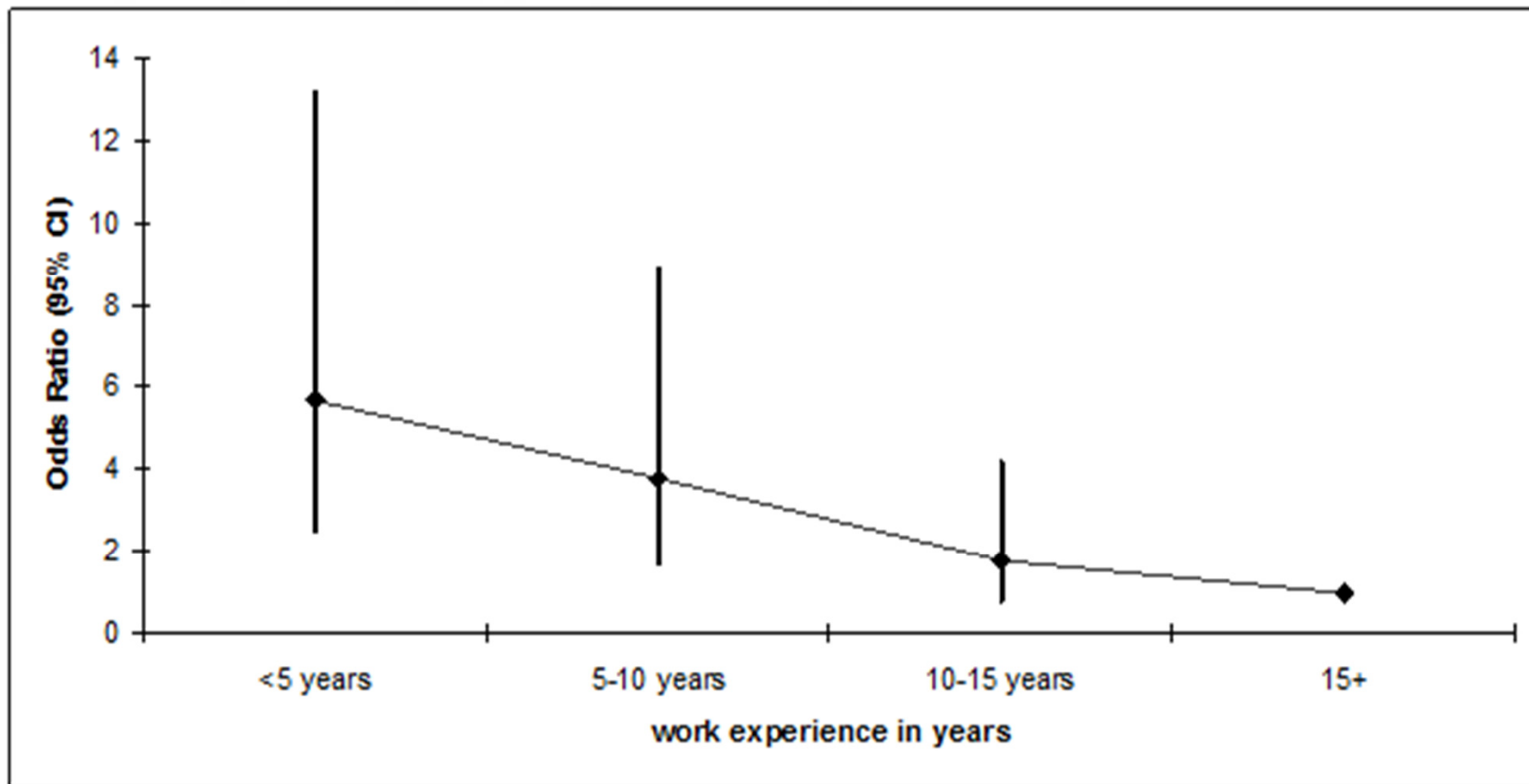
Variables	Sharp Injury		OR (95% CI)	P value
	Yes(n=85)	No(n=232)		
Work experience in years:				
<5	30(35.3)	35(15.0)	5.7(2.5-13.2)	0.001
5-10	25(29.4)	43(13.3)	3.8(1.7-8.9)	
10-15	18(21.2)	67(28.9)	1.8(0.8-4.2)	
15+	13(15.3)	87(37.5)	1	
Years of schooling:				
10-12 year	75(88.2)	125(53.9)	6.4(3.0-13.9)	<0.001
14-16 years	10(11.8)	107(46.1)	1	
Number of injections administered per day:				
<30	10(11.8)	90(38.8)	1	<0.001
≥30	75(88.2)	142(61.2)	4.7(2.2-10.3)	
Number of patients per day:				
≤20	7(8.2)	91(39.2)	1	<0.001
>20	78(91.8)	141(60.8)	7.2(3.0-17.8)	
Use of disposable syringe for each injection:				
Yes	6(7.0)	74(31.9)	6.2(2.5-16.5)	<0.001
No	79(92.9)	158(68.1)	1	
Needle recapping after use:				
Yes	81(95.3)	196(84.5)	3.7(1.2-12.7)	0.017
No	4(4.7)	36(15.5)	1	





Result

Fig 1. Odds ratio of sharp injuries among medical practitioners across different categories of work experience in slum area of Karachi





Limitation

- **Self reported data**
- **Social desirability bias**
- **Imperfect recall bias (SI in last one year)**





Conclusion

- Medical practitioners are at high risk of Blood borne infections
- High prevalence of SI due unsafe injection practice
- Awareness at large scale level to enhance Safe injection practice e.g. One hand injection technique
- Vaccination of Medical Practitioners





Injection practices among practitioners in private medical clinics of Karachi, Pakistan

M.T. Yousafzai,^{1,2} N. Nisar,^{3,6} M.F. Kakakhel,⁴ M.H. Qadri,^{1,5} R. Khalil¹ and S.M. Hazara^{6,7}

ممارسات الحقن بين الممارسين في العيادات الطبية الخاصة في كراتشي، باكستان

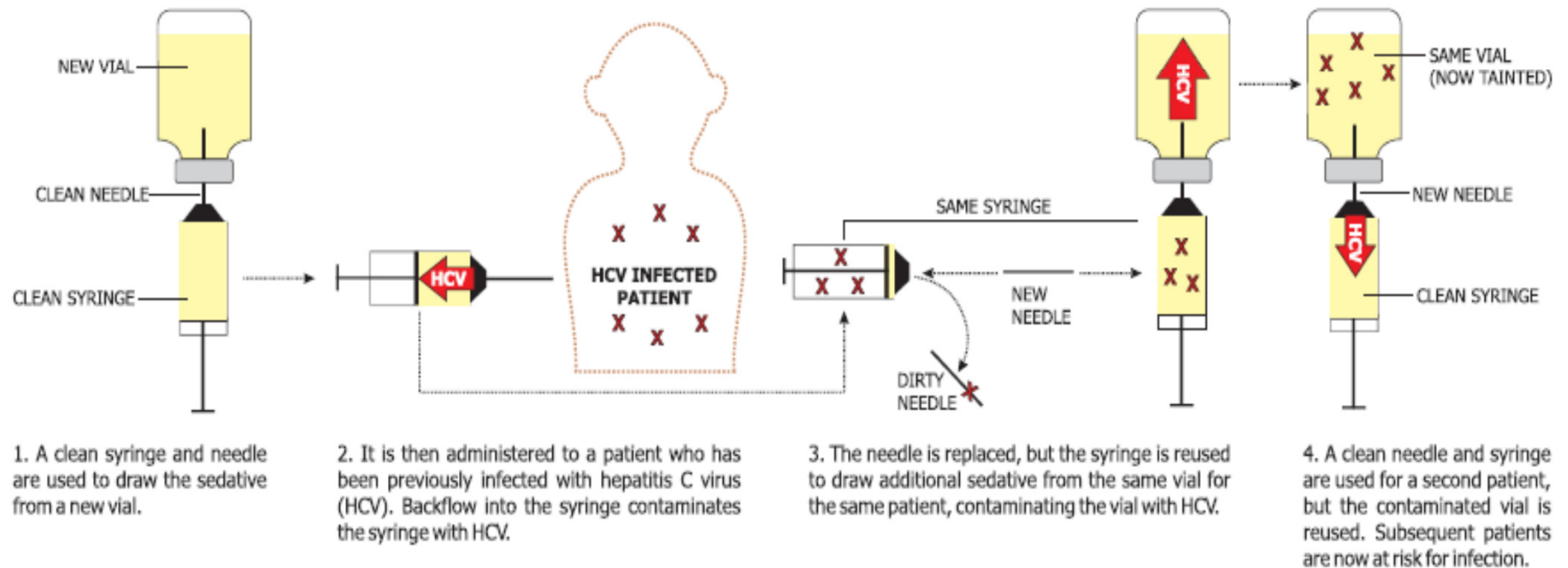
محمد طاهر يوسفزاي، نجهت نزار، محمد فاضل كاكاهل، مجيد حفيظ قادري، ریحانة خليل، شیر محمد حزاره

الخلاصة: تهدف هذه الدراسة إلى التعرف على تواتر ومحددات الإصابات بالأدوات الجارحة بين الممارسين الصحيين في القطاع الخاص في المناطق العشوائية في كراتشي، باكستان، وقد طلب الباحثون من جميع الممارسين الذين أمضوا أكثر من عام ضمن عيادة طبية في القطاع الخاص استكمال استبيان منظم يملؤه الممارسون أنفسهم. وبلغ عدد المستجيبين 317 من أصل 397؛ واتضح أن 7.9% من الممارسين فقط مؤهلون من كلية الطب، وأن 12.3% منهم كانوا ممرضين مسجلين، وأن 8.8% منهم يفتقدون لأي مؤهلات مهنية، وأن أكثر من إصابة واحدة بالأدوات الجارحة قد سُجِّلت خلال الأشهر الاثني عشر من قبيل 26.7%، وكان معظمها ناجماً عن إعادة تغطية الإبرة؛ كما أن 25.2% من الممارسين أبلغوا أنهم يستخدمون محقنة جديدة لكل مريض. وفي التحليل التحوُّفي المتعدد المتغيرات اتضح أن وجود خبرة لفترات أقصر وأن التعليم لفترة تقل عن 14 عاماً، وعدد المرضى الذين يزيد على 20 مريضاً في اليوم، وإعطاء أكثر من 30 حقنة كل يوم، وإعادة استخدام المحاقن، وإعادة تغطية الإبر بعد استخدامها، هي العوامل التي ترتبط ارتباطاً يُعتدُّ به إحصائياً مع الإصابات بالأدوات الحادة في السَّنة الماضية. والحاجة ماسّة إلى توعية أفضل وتدريب أحسن حول الاحتياطات المعيارية لدى الممارسين في القطاع الخاص في المناطق العشوائية في كراتشي.



Unsafe Injection Practices and Disease Transmission

Reuse of syringes combined with the use of single-dose vials for multiple patients undergoing anesthesia can transmit infectious diseases. The syringe does not have to be used on multiple patients for this to occur.



Source: www.southernnevadahealthdistrict.org

Thank You

