Infection Control Survey in Nephrology Services

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Survey Objectives

- To collate information on the current practices in renal centres to share their good clinical practices and to understand their limitations
- To liaise with the stakeholders and seek their expert opinions to facilitate formulation of the Infection Control Guideline in Nephrology Service

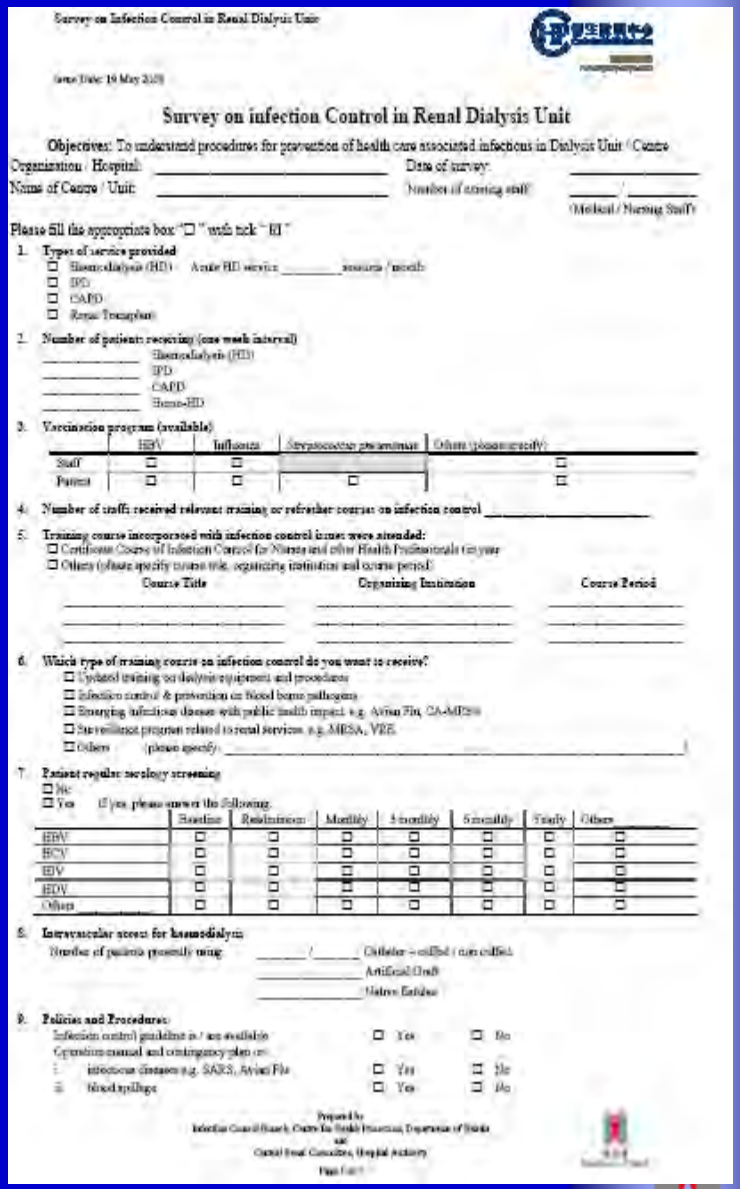
Recruitment

- As of May 2008, 27 Renal / Dialysis centres in public, private and charitable sector were identified
- Questionnaires were distributed via postage to above 27 eligible renal / dialysis centres
- **The response rate was 92.6% (25/27)**

Health Care Sector	No. of Dialysis centre	Response rate
Public sector under Hospital Authority	13	100% (13/13)
Private hospital	8	87.5% (7/8)
Community centre	6	83.3% (5/6)

The questionnaire

1. Vascular access
2. Reuse of disposable hemodialysers
3. Serology testing
4. Surveillance programme for MDROs & CABSI
5. Staff Training
6. Selected infection control practices



Survey on Infection Control in Renal Dialysis Unit

Survey on infection Control in Renal Dialysis Unit

Objectives: To understand procedures for prevention of health care associated infections in Dialysis Unit / Centre

Organization / Hospital: _____ Date of survey: _____

Name of Centre / Unit: _____ Number of nursing staff: _____ / _____ (Medical / Nursing Staff)

Please fill the appropriate box "☐" with tick "☑"

1. Types of service provided
   - ☐ Haemodialysis (HD) Acute HD service _____ sessions / month
   - ☐ IPD
   - ☐ CAPD
   - ☐ Renal Transplant
2. Number of patients receiving (one week interval)
   - _____ Haemodialysis (HD)
   - _____ IPD
   - _____ CAPD
   - _____ Home-HD
3. Vaccination program (available)

	HBV	Influenza	Streptococcus pneumoniae	Others (please specify)
Staff	☐	☐		☐
Patient	☐	☐	☐	☐

4. Number of staffs received relevant training or refresher courses on infection control _____
5. Training course incorporated with infection control issues were attended:
   - ☐ Certificate Course of Infection Control for Nurses and other Health Professionals (1st year
   - ☐ Others (please specify course title, organizing institution and course period)

Course Title	Organizing Institution	Course Period
_____	_____	_____
_____	_____	_____
_____	_____	_____

6. Which type of training course on infection control do you want to receive?
   - ☐ Updated training on dialysis equipment and procedures
   - ☐ Infection control & prevention on blood borne pathogens
   - ☐ Emerging infectious diseases with public health impact, e.g. Avian Flu, SARS
   - ☐ Surveillance program related to renal services, e.g. MRSA, VRE
   - ☐ Others (please specify) _____
7. Patient regular serology screening
   - ☐ No
   - ☐ Yes If yes, please answer the following:

	Baseline	Readmission	Monthly	3-monthly	6-monthly	Yearly	Others
HBV	☐	☐	☐	☐	☐	☐	☐
HCV	☐	☐	☐	☐	☐	☐	☐
HIV	☐	☐	☐	☐	☐	☐	☐
HDV	☐	☐	☐	☐	☐	☐	☐
Others _____	☐	☐	☐	☐	☐	☐	☐

8. Intravascular access for haemodialysis
   - Number of patients presently using _____ / _____ Catheter – cuffed / non-cuffed
   - _____ Arteriovenous Graft
   - _____ Native Fistulae
9. Policies and Procedures:
   - Infection control guidelines is / are available ☐ Yes ☐ No
   - Operation manual and contingency plan on:
     - i. infectious diseases e.g. SARS, Avian Flu ☐ Yes ☐ No
     - ii. blood spillage ☐ Yes ☐ No

Prepared by
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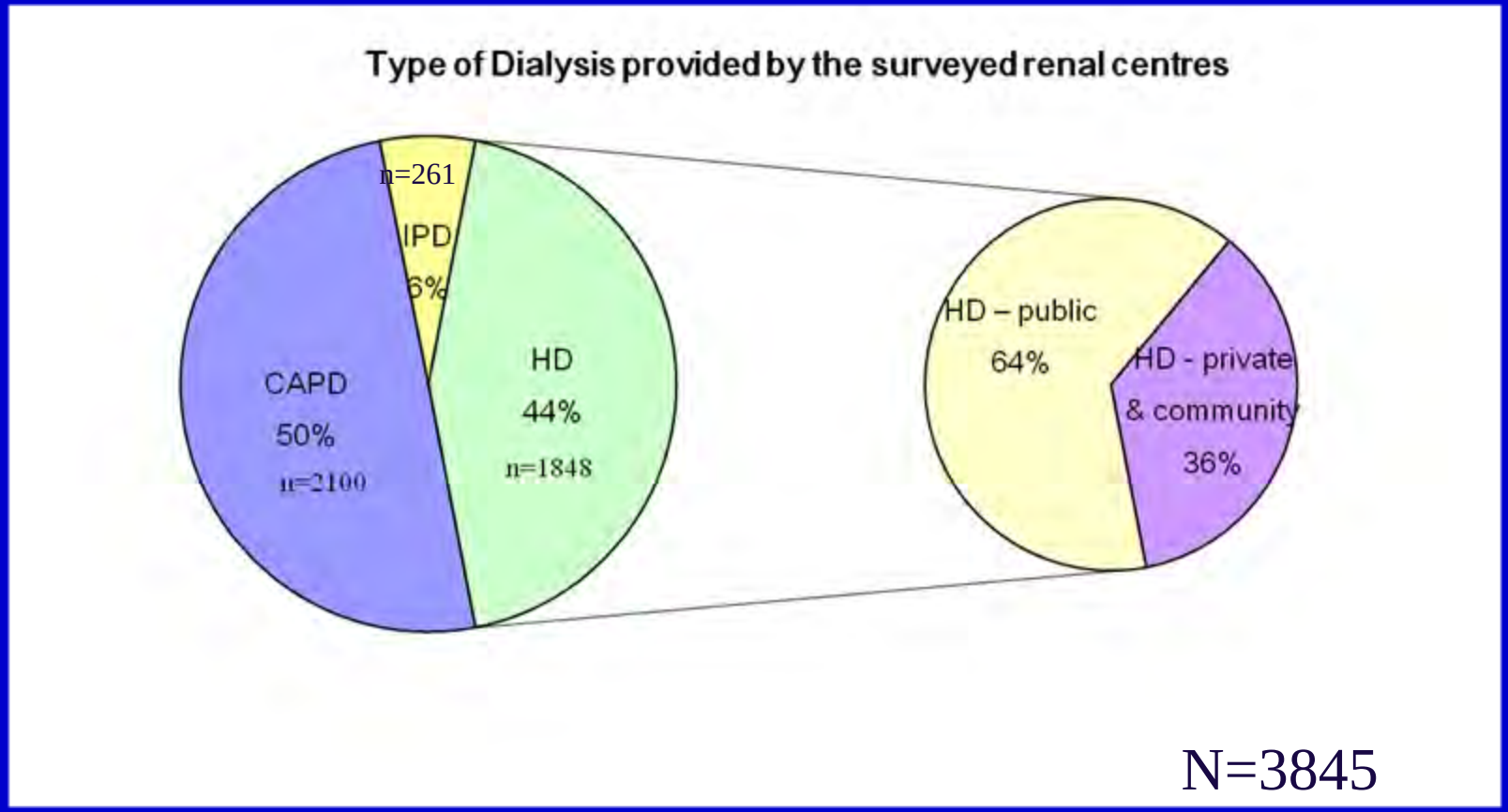


N=3845

- All the surveyed dialysis centres provided hemodialysis service to their patients
- CAPD and IPD were available in the public hospitals only.
- All renal transplant surgeries were done in four renal centres in public hospitals

Intravascular Access

The Dialysis Outcomes and Practice Patterns Study (DOPPS)

- The primary risk factor for access infection
- Risks ↑ : IV Catheters > Grafts > **arteriovenous fistulas (AVFs)**
- Synthetic grafts ↑ 2 times of intervention or failure rate > AV fistulae
- 50% of the synthetic grafts required some intervention during 1 year, compared to 32% for AV fistulae.
- Use of a catheter > 1.6-fold failure rate than AV fistula.
- The total annual global cost of vascular access morbidity has been estimated to account for 14% to 17% per haemodialysis year.

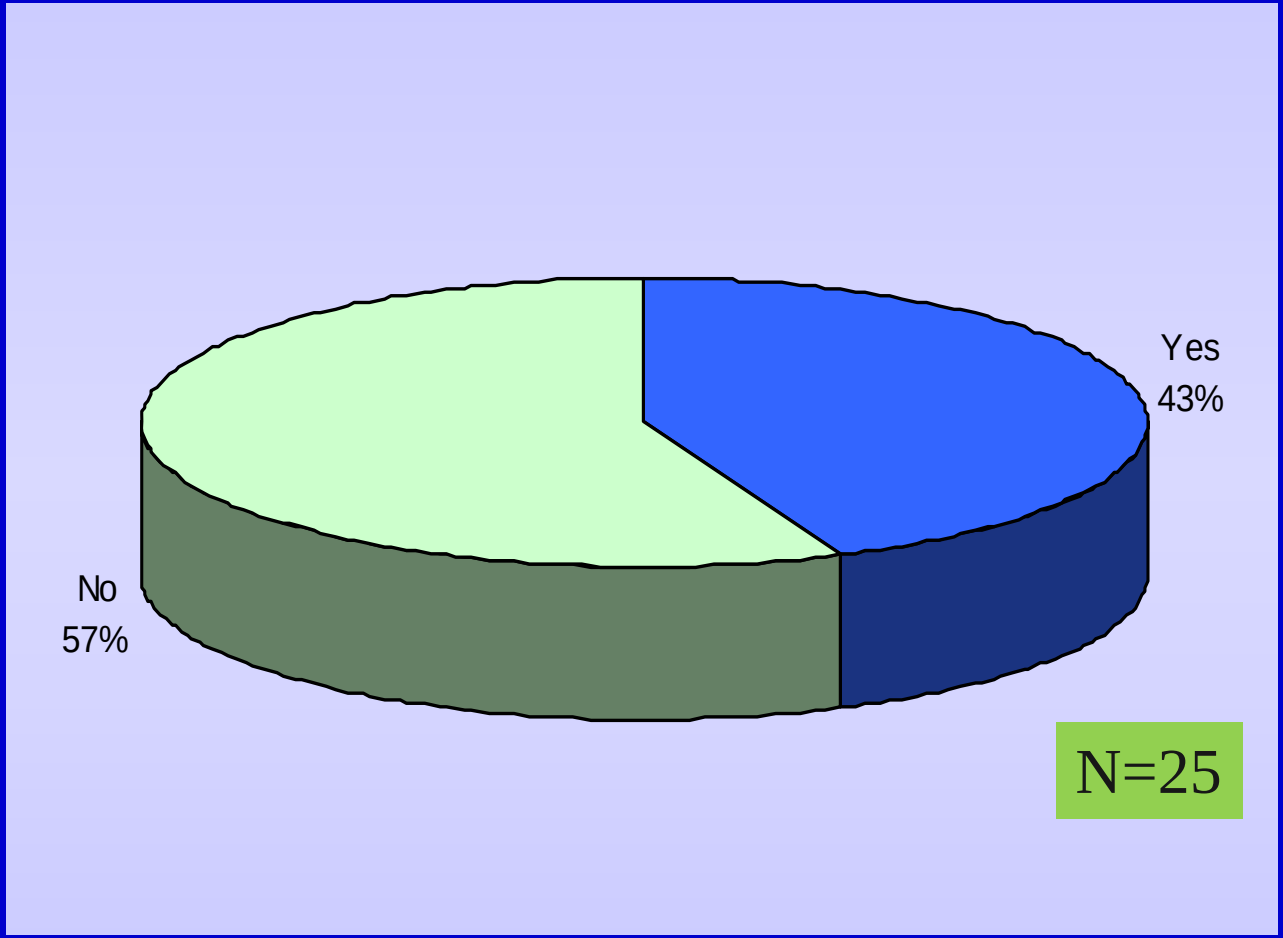
Types of Intravascular Access in different countries

** Chronic kidney disease best practice 2004*

 # National surveillance of Dialysis –associated infection in United State, 2002

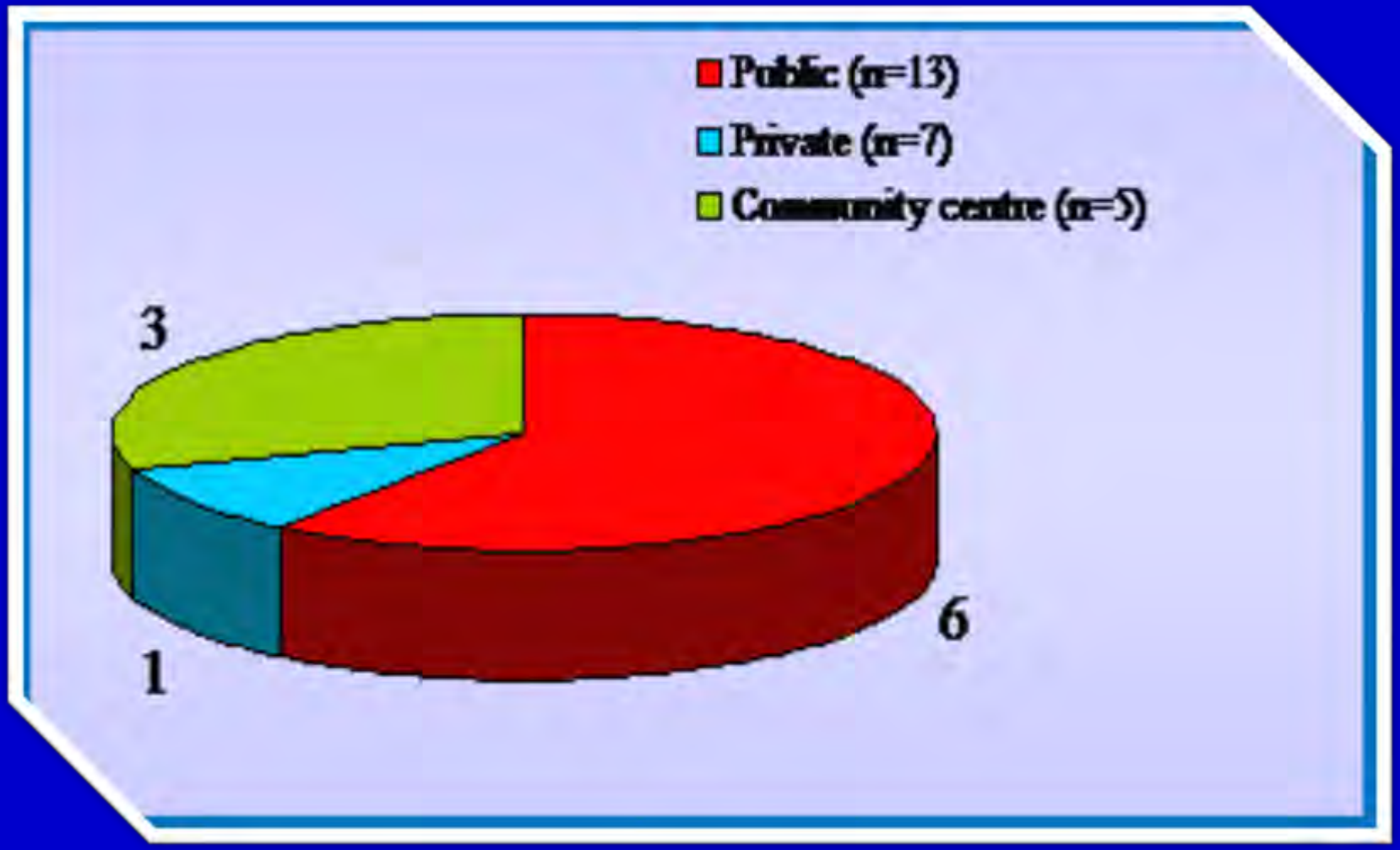
Country	Intravascular access			
	AV Fistula	AV Graft	IV Catheter	
			Cuffed	Non-cuffed
Hong Kong (n=1256)	54%	9%	20%	17%
Japan*	65%	3%	32%	-
USA#	32.7%	41.6%	23.2%	2.4%
Europe *	67%	8%	3%	22%

Reuse of Artificial Kidney/ Haemodialyzers in Renal Centre

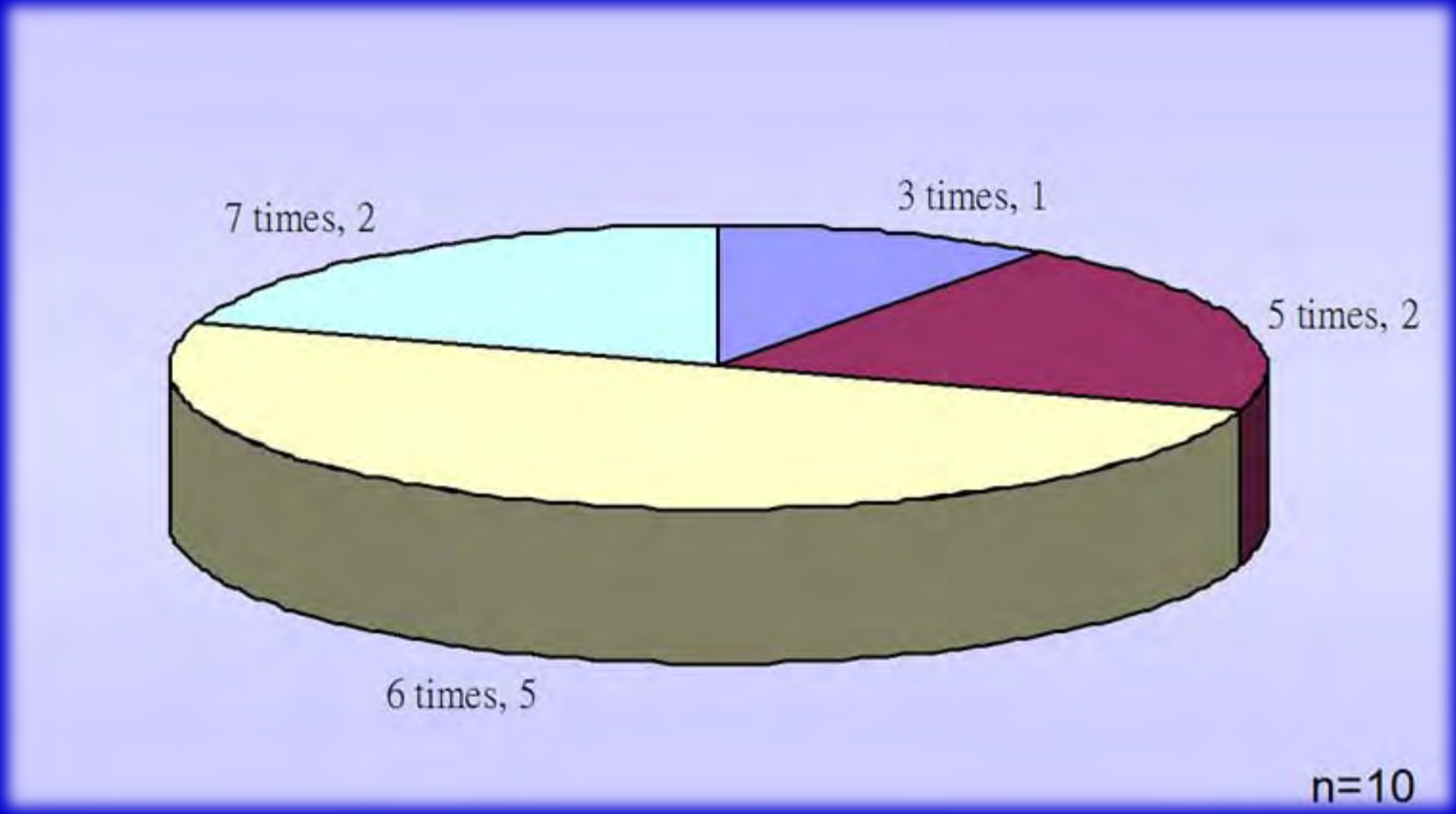


Dialyser is not reused for HBsAg positive patients in Hong Kong

Reuse of artificial kidney/ haemodialyzers in different sectors (Public, Private and community Center)



Number of times of reuse of Artificial Kidney/ Haemodialyzers



Reuse of Artificial Kidneys

Country	Single use	Reuse
HK	60% (13/25)	**40% (10/25)**
USA *	37%	**63%**

***National Surveillance of Dialysis Associated Diseases in the United States, 2002**

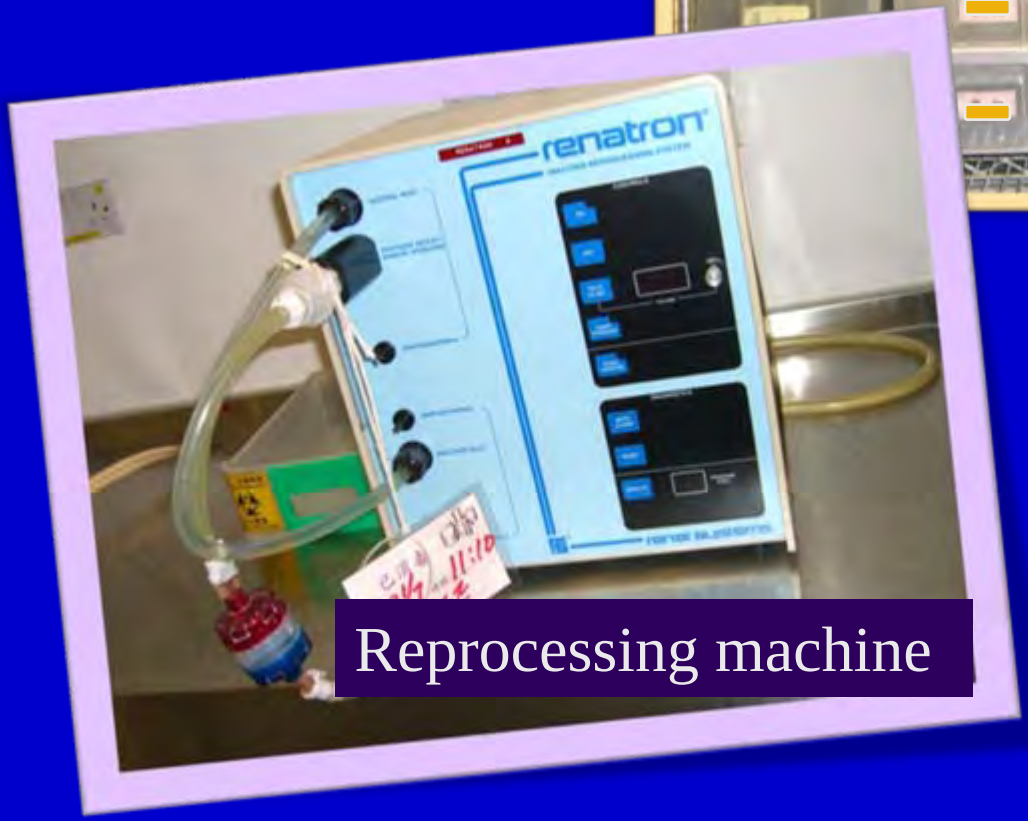
6.3.5 Written protocol should be available for documentation of the reprocessing procedures of dialyzer, including the disinfectant used, rinsing procedures and total removal of disinfectant after rinsing procedure by using an appropriate testing method (40).

6.3.6 Each dialyzer should be clearly labeled and identifiable. It should be reused by the same patient (40).

6.3.7 The water standard for reprocessing the dialyzer should be as pure as the dialysate (microbial count should be less than 100 CFU/mL) (69)

6.3.8 Follow manufacturer's recommendation on sanitization of the reprocessing machine.

Reusable dialyzers are properly labeled and identifiable



Reprocessing machine

Risk of transmission of Blood Borne Pathogens

Blood Borne Pathogens	General Population (H.K.)*	Exposure risk
		Percutaneous exposure
HBV	8%	
a) HBeAg +ve		37%-62% (acute:22-31%)
b) HBeAg -ve		23%-37% (acute:1-6%)
HCV	0.2%-0.3%	1.8% (0-7%), hollow-bore needle
HIV	<0.1%	0.3% (0.2-0.5%)

* Prevention. March 2003Recommendations on the Management and Postexposre Prophylaxis of Needlestick Injury or mucosal Contact to HBV, HCV and HIV. Scientific Committee on AIDS, Scientific Working Group on Viral Hepatitis

 # Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis. 2001

Serology testing for HD patients

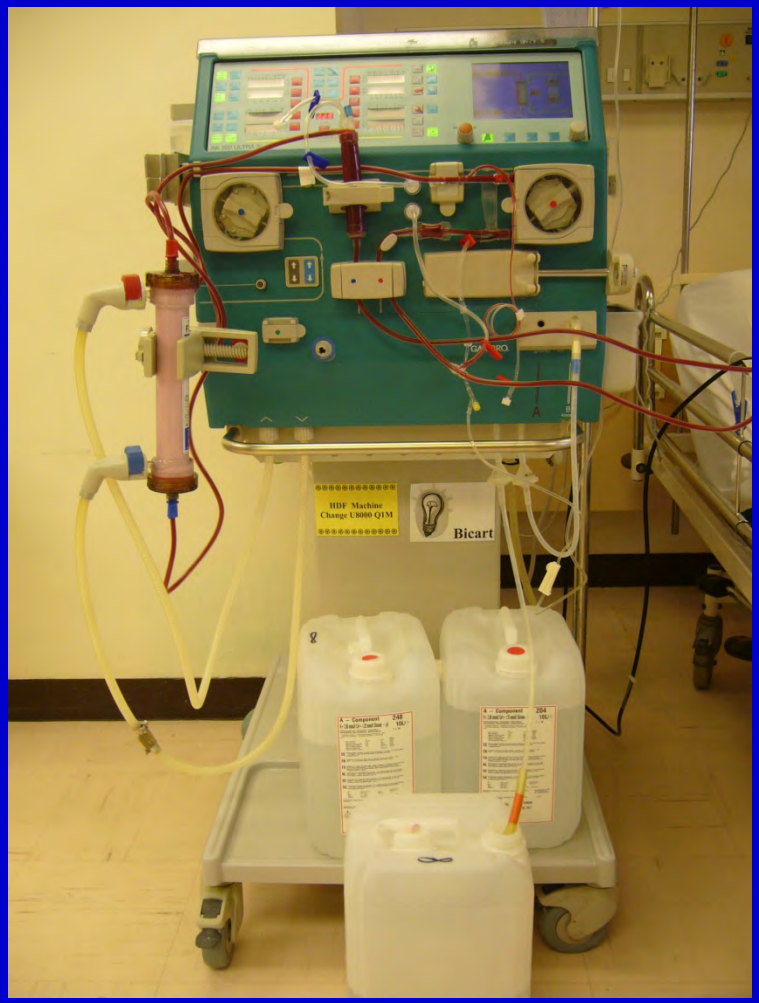
Serology testing	Current Practice	Recommendations*
HBV		
Baseline	100%	R
Monthly / 6-monthly	*26%*	-
Annually	**70%**	**R**
1. Non –responder s who are susceptible to HBV infection should be tested for HBsAg 6-monthly		
2. No FU testing for patient with natural HBV infection		
HCV		
Baseline	95%	R
6-monthly	**4%**	**R**
Annually	*83%*	-
HIV		
Baseline	83%	R
Routine testing	*30%*	*NR*

**Infection Control Guideline on Nephrology Service in Hong Kong*

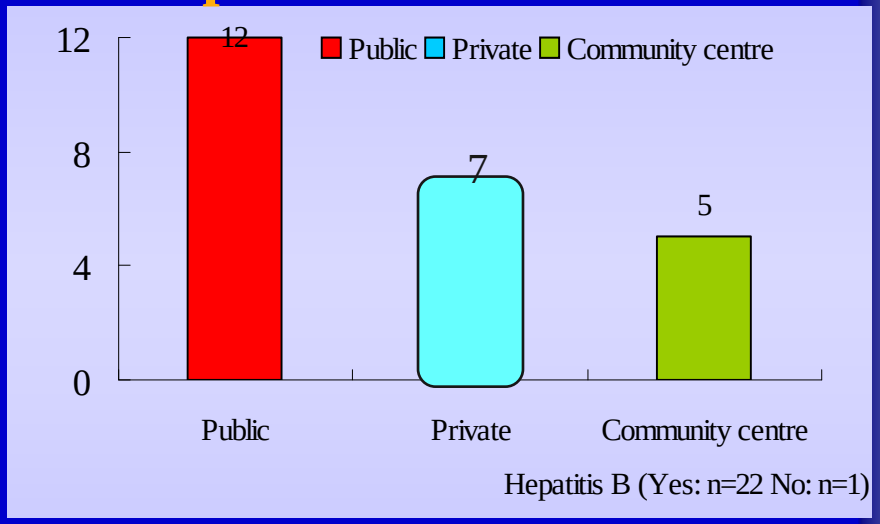
Practice of Physical Isolation for Infectious Diseases in Renal

Types of infectious disease	Physically isolated (%)			Not physically isolated (%)
	Single room	Cohorting	Corner bed	
HBV	7/23 (30%)	8/23 (35%)	7/23 (30%)	1/23 (4%)
HCV	4/23 (17%)	6/23 (26%)	12/23 (52%)	1/23 (4%)
HIV	0/23 (0%)	2/23 (9%)	11/23 (48)	10/23 (43%)
MRSA		17/25 (68%)		8/25 (32%)
VRE	4/23 (17%)	1/23 (4%)	9/23 (39%)	14/23 (39%)

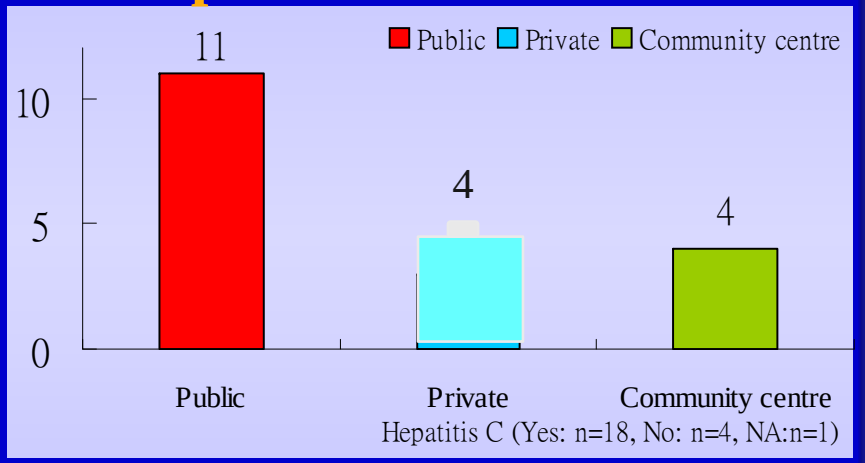
Designated Machine to:



HBV patients

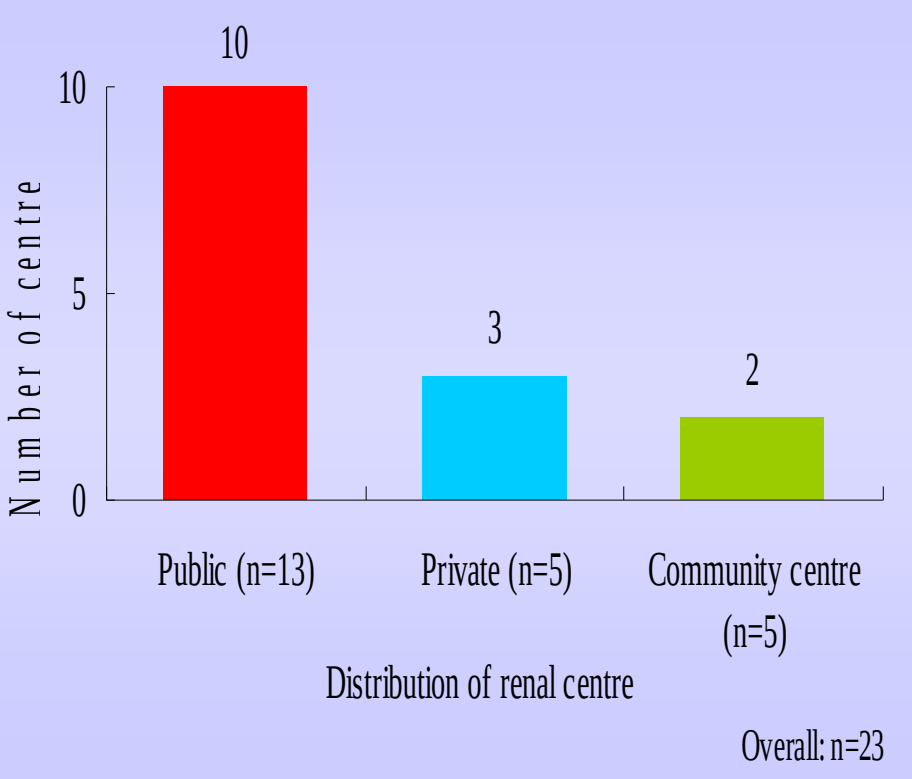


HCV patient



All centers disinfect HD machine after each shift according to the manufacturer's recommendation

Surveillance Program



65% of the surveyed centers have the following two SP:

1.MRSA Screening program

2.Catheter-related blood stream infection

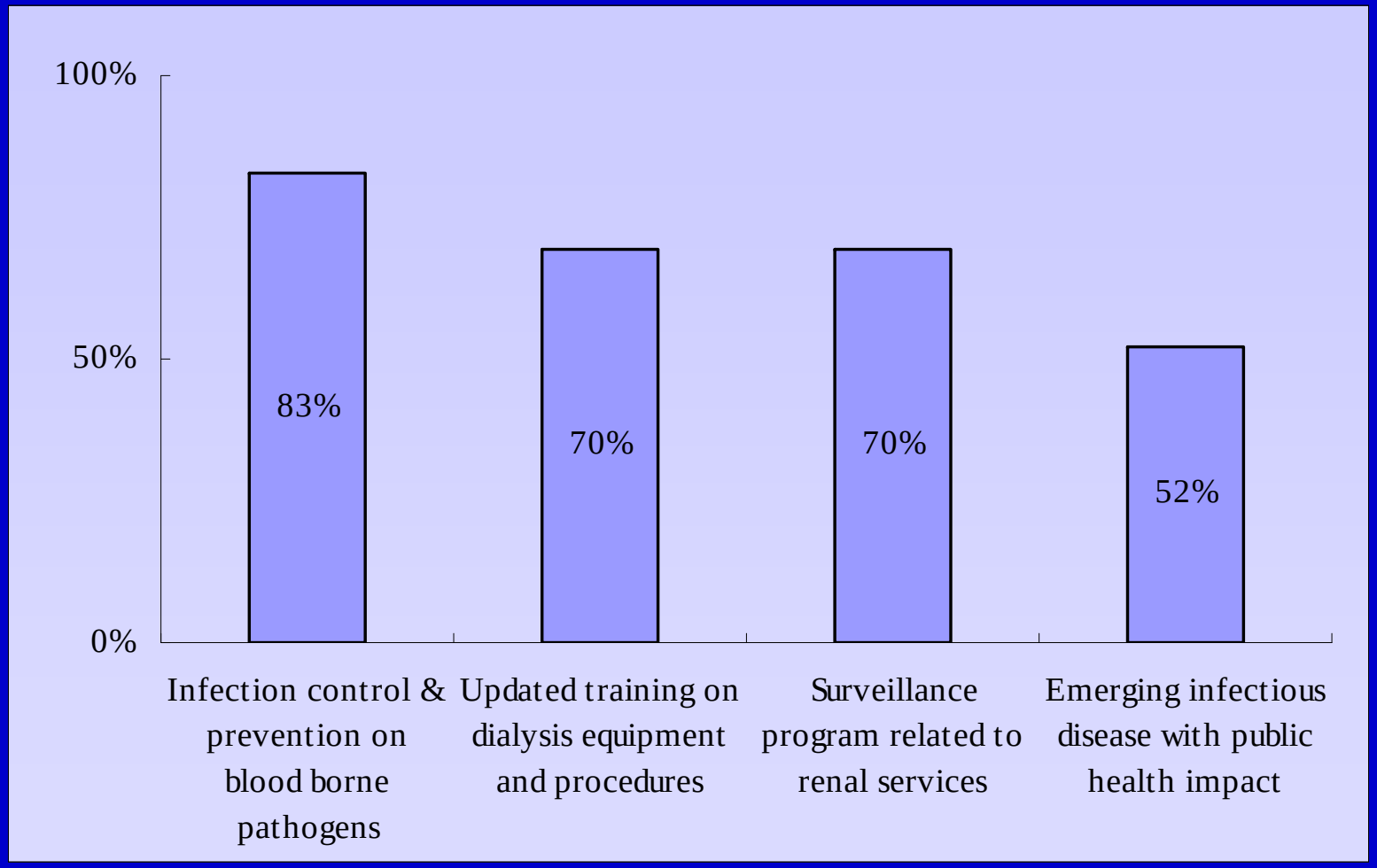
Others Surveillance in some centers

- Staff Sick Leave
- MDRO surveillance eg. ESBL
- Percutaneous catheter-related infection surveillance (HD)

Staff received relevant training on Infection Control

	No. of existing staff in renal centre	Total no. of Staff received relevant training on infection control
Community centre (n=5)	**37**	**18 (49%)**
Private (n=7)	**62**	**25 (40%)**
Public (n=13)	**443**	**374 (84%)**
TOTAL	**542**	**417 (77%)**

Training Needs



Infection Control Practice – Hand Hygiene

Infection Control Practice – Handling of blood spillage

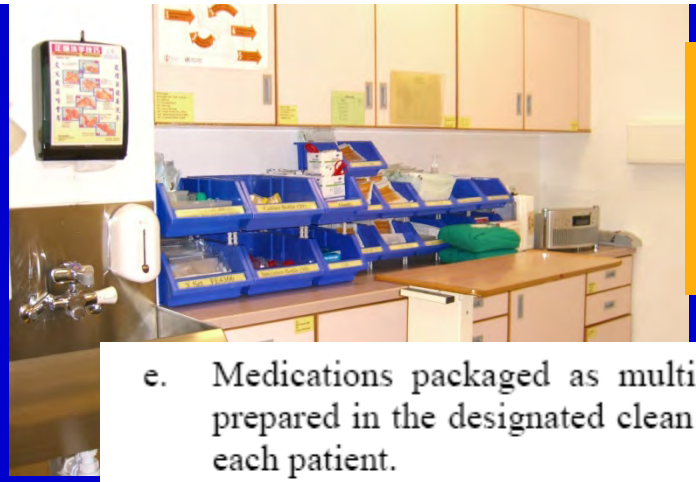
- Only 21% of centers perform correct disinfection procedures for blood spillage by using 10,000 ppm household bleach for 10 minutes
- Most common misconception is using inappropriate concentration of bleach and contact time

Infection Control Practice – Medications

TABLE 13. Place where injectable medications were prepared and association with incidence of HBV and HCV infection in patients, 2002, United States

Place where medication drawn up into syringe	HBsAg incidence,[a] *n*/total (%)	Anti-HCV incidence,[b] *n*/total (%)
Dedicated medication room or medication preparation area separate from treatment area	29/48,210 (0.06)	230/67,638 (0.34)
Dialysis station	5/3896 (0.13)	19/5982 (0.32)
Medication cart or medication area located within the treatment area	75/28,241 (0.27)*	160/44,506 (0.36)

[a]Analysis limited to centers that have at least one prevalent case of HBV infection.
[b]Analysis limited to centers that test for anti-HCV and have at least one prevalent case of HCV infection.
*$p < 0.05$ compared with dedicated medication room or medication preparation area separate from treatment area.



70% of the centres have the designated area for medication preparation

e. Medications packaged as multi-dose preparations should be prepared in the designated clean area and deliver separately to each patient.

f. Medications taken to the patient care area or dialysis station should be used only for that patient and should not be returned to a common clean area or used on other patients.

Renal GL 2010

Infection Control Practices

Proper disposal of wastes

Appropriate PPE

Safe sharp disposal

Acknowledgment

Renal Working Group Members

Acknowledgment

HA hospitals

1. *Alice Ho Miu Ling Nethersole Hospital*
2. *Prince of Wales Hospital*
3. *Princess Margaret Hospital*
4. *Queen Elizabeth Hospital*
5. *Queen Mary Hospital*
6. *Tuen Mun Hospital*
7. *Tung Wah Hospital*
8. *Yau Ma Tei Satellite Centre*
9. *United Christian Hospital*

Private hospitals & charitable centers

1. *Canossa Hospital (Caritas)*
2. *Hong Kong Renal Centre Limited*
3. *Hong Kong Sanatorium & Hospital*

Thank You

衞生防護中心
Centre for Health Protection

衞生署
Department of Health