

**1<sup>st</sup> REPORT OF  
THE MALAYSIAN REGISTRY  
of  
RENAL BIOPSY**

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The National Renal Registry is funded with grants from:

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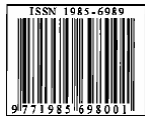
**Fresenius Medical Care**

**Roche**

December 2008

© National Renal Registry, Malaysia

ISSN 1985-6989



***Published by:***

**The National Renal Registry**

Malaysian Society of Nephrology

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Cover illustration complimentary of Dr. Nik Hasimah Nik Yahya, HKL

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Rosnawati Yahya, Wan Jazilah W I (Eds) First Report of the Malaysian Registry of Renal Biopsy. Kuala Lumpur 2008

This report is also published electronically on these websites <http://www.msn.org.my/nrr> or <https://www.macr.org.my/emrrb> .

## **ACKNOWLEDGEMENTS**

**The National Renal Registry would like to thank the following:**

*All the nephrologists and staff of the participating hospitals  
for their hard work and contribution,*

**The Ministry of Health, Malaysia for support seen and unseen,**

**For their generous support -**

**Ain Medicare**

**Baxter Healthcare**

**Fresenius Medical Care**

**Roche**

*The staff of the Clinical Research Centre particularly Lim Jie Ying,  
Hoo Ling Ping and Azizah Alimat*

**&**

*All who have in one way or another supported the National Renal  
Registry.*

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## **ABOUT MALAYSIAN REGISTRY OF RENAL BIOPSY**

Renal biopsy remains the main investigation in the diagnosis of renal diseases. In addition, it plays a major role in determining the management and prognosis of parenchymal renal disease. The collection of demographic, clinical and laboratory data at the time of biopsy and the set up of a database are useful tools for studying renal parenchymal diseases.

The development of a renal biopsy registry in each country promotes many advantages and these include comparison in incidence of renal diseases, identification of different policies and practices in renal biopsy in different areas, linkage with other registries such as dialysis or transplant registry and identification of rare renal diseases. Thus, the registry is a source of epidemiological data and would provide useful information in the planning of health care and in organizing prospective clinical studies.

The incidence of glomerular disease varies according to population, demographic characteristics, environmental factors, socio-economic status and the prevalence of infectious diseases. At present, there is limited information on the prevalence and incidence of glomerular disease, its potential disease burden and the temporal trend in Malaysia. Hence, the Malaysian Registry of Renal Biopsy (MRRB) was set up in 2005 to address this deficiency.

The MRRB collects information about patients who undergo renal biopsy in Malaysia. The MRRB is a new component of National Renal Registry (NRR), which has been operating the Malaysian Dialysis and Transplant Registry (MDTR) since 1993.

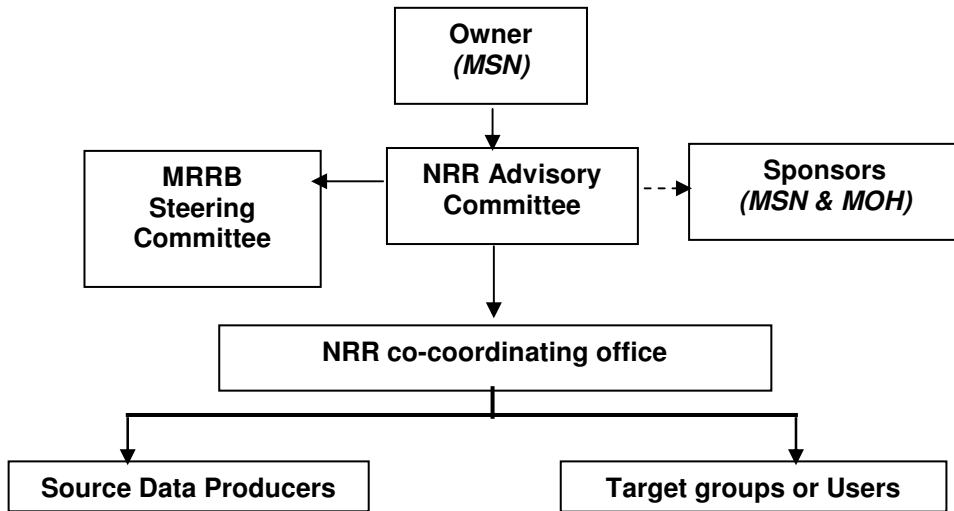
### **Objectives**

The objectives of the MRRB registry are to:

1. Determine the disease burden attributable to glomerular disease (GD) by quantifying its incidence and prevalence, and its geographic and temporal trends in Malaysia.
2. Identify subgroups in the population at high risk of GD to whom preventive efforts should be targeted.
3. Identify potential causal and risk factors involved in GD.
4. Describe the clinical presentation and spectrum of GD.
5. Stimulate and facilitate basic, clinical and epidemiological research on GD.
6. Identify causes of allograft failure in our renal transplant population.
7. To audit the renal biopsy procedure, monitor both complications and quality of specimens in addition to identifying risk factors associated with complications.

## Organization

The NRR organization is as follows:



### Owner

The Malaysian Society of Nephrology (MSN) is the owner of this registry.

### Sponsors

The MRRB is sponsored by the Malaysian Society of Nephrology (MSN) and the Ministry of Health, Malaysia.

### NRR Advisory Committee

This is the committee established by the sponsors. The NRR Advisory Committee's role is to ensure that the MRRB stay focused on its objectives and to assure its continuing relevance and justification.

### MRRB Steering Committee

The MRRB Working Committee supervises its operations.

### National Renal Registry Office

The NRR coordinating office is the designated coordinating center. It coordinates the data collection among the Source Data Providers (SDPs). It collaborates with Clinical Research Centre of Hospital Kuala Lumpur that provides epidemiological and statistical support for MRRB.

### Source Data Producers (SDP)

These are centres that contribute the required data for MRRB. The SDP collects and enters data directly through the on-line web-base system. The pilot phase of the registry consists of SDPs from Ministry of Health.

Throughout this initial phase, we have refined and improved the database. This year (2008), the registry is expanding to a national level to include participation from all nephrologists and renal physicians in Malaysia who perform renal biopsies. We hope the nephrology community will support us by submitting information, which is crucial to eventually improve the management of patients with Chronic Kidney Disease CKD.

**To Participate in MRRB**

Centres interested to participate in this registry please write in to NRR officially via post or you may send an e-mail to NRR [nrr@msn.org.my](mailto:nrr@msn.org.my) or [mrrb@msn.org.my](mailto:mrrb@msn.org.my).

The following documents need to be completed and returned to facilitate participation.

- Centre Participation Self Reply Form
- Authorization Form
- Information Security Policy/User Agreement . One form per nominee as listed in the Authorization form. Users must have a personal mobile phone to received SMS authentication.

Upon receiving these documents, the centre shall be registered and each of the users of the MRRB shall be notified via their e-mail address.

**Methodology**

All patients from participating centres who undergo any kidney biopsy (native or graft) are to be enrolled into the registry.

On-line data submission is through MRRB web application or paper CRF. The data variables collected include demography, clinical presentation, and indication of biopsy, renal function, and laboratory data at presentation and at the time of biopsy, serological markers, virology status and histopathological result. In addition, an update on outcomes in terms of significant end-points such as end stage renal disease or death will be recorded annually.



## PARTICIPATING CENTRES AT DECEMBER 2007

SDP Name	Adult Nephrology	Paediatric Nephrology
Kuala Lumpur Hospital	√	√
Sultanah Bahiyah Hospital, Alor Star	√	
Pulau Pinang Hospital	√	√
Raja Permaisuri Bainun Hospital, Ipoh	√	
Tengku Ampuan Rahimah Hospital, Kelang	√	
Tuanku Ja'afar Hospital, Seremban	√	√
Melaka Hospital	√	
Sultanah Aminah Hospital, Johor Bharu	√	
Tengku Ampuan Afzan Hospital, Kuantan	√	√
Sultanah Nur Zahirah Hospital, Kuala Terengganu	√	
Raja Perempuan Zainab II Hospital, Kota Bharu	√	
Queen Elizabeth Hospital, Kota Kinabalu	√	
Sarawak General Hospital	√	
Selayang Hospital	√	√
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## FOREWORD

The idea to start a Glomerulonephritis (GN) registry was mooted a few years ago at one of the annual meetings of the Ministry of Health's nephrologists. Following the success of the Malaysian Dialysis and Transplant Registry (MDTR), it was felt that the National Renal Registry should embark on other renal related registries. Two new registries were proposed i.e. the GN registry and the Diabetic nephropathy registry. The diabetic nephropathy registry would involve a larger number of patients and entail greater logistic and other support; hence the decision to start the GN registry first. Dr. Wan Shaariah was appointed to chair the Steering Committee in 2005. The group decided to change the name of the registry to the Malaysian Registry of Renal Biopsy (MRRB) to more accurately reflect the purpose and focus of the registry. The outcome of the detailed and thorough work of the group is this first report which marks another milestone and achievement for the National Renal Registry. More importantly, it highlights a bigger achievement – the nephrology community in the country is ever willing to work together to promote the advancement of the specialty by contributing and sharing data.

The lessons learned from the MDTR provided valuable guide in initiating and developing the MRRB. It was felt that initially the MRRB will gather data only from the Ministry of Health (MOH). The close working relationship amongst the MOH nephrologists and almost similar work processes within the network facilitate the initial development and testing of case report forms, data submission processes and data analysis. There were many initial hiccups including definition of terms used, accuracy of data, incomplete data submission and missing data. The task of “cleaning” and checking data took a while and definition of certain terminologies changed along the way, necessitating reanalysis. This onerous task was handled superbly by the steering committee and the NRR manager and staff. The MRRB now invites nephrologists from the Universities and the private sector to join in and contribute data to make the MRRB a truly national registry, very much like the MDTR.

Data on the histological pattern of glomerular diseases in the country were available for nearly twenty years through publications in local medical journals. They however reflected the cases seen in a tertiary referral centre. The MRRB gathers data from all hospitals doing renal biopsy. The publications provided “snapshots” of the patterns of glomerular diseases (GD) with little information on subsequent clinical course of the patients. The MRRB hopes to do more by providing details on patient demographics and clinical presentations as well as outcomes. This will be a challenging task as unlike the dialysis and transplant patients who are “captive patients”; those with GD may not stay with the same doctor all their lives making assessment of their long-term outcomes a major task. Nonetheless the MRRB hopes to overcome these challenges and will count on the commitment of the nephrologists to provide data on these long term outcomes. Another feature of this registry is the record on the actual biopsy procedures including the technique used, the number of passes, the adequacy of the tissue sample and other details. This will help the institutions involved in quality improvement initiatives.

## FOREWORD *(con't)*

This first reports confirmed long-held clinical impressions. Adult patients with asymptomatic urinary abnormalities are more likely to have IgA disease or lupus nephritis. Similarly an adult female patient presenting with nephritic-nephrotic syndrome is likely to have lupus nephritis. A purely nephrotic presentation is more often due to minimal change disease or focal segmental glomerulosclerosis (FSGS). The section of graft biopsies showed similar correlation with clinical impressions in that the three most common histopathological findings are the usual three most common clinical diagnoses requiring biopsies for confirmation. They are acute rejection, calcineurin inhibitor toxicity and chronic allograft nephropathy.

It will take a number of years before the MRRB matures. The NRR committee and the MRRB Steering Committee thank all contributors for their support and hope they will continue to show the same commitment and enthusiasm for MRRB as they do with MDTR. We would like to thank Dr. Wan Shaariah and the committee as well as Ms. Lee Day Guat and her team at NRR for their tireless efforts in making this registry a success.

**Dr. Zaki Morad B Mohd Zaher**

**Dr. Rozina Ghazalli**

**Co- Chairpersons  
National Renal Registry**

# CONTENTS

<b>CHAPTER 1</b>	<b>OVERVIEW OF RENAL BIOPSY IN MALAYSIA</b>	<b>1</b>
1.1	Introduction	2
1.2	<b>Renal biopsies from the participating centres</b>	<b>2</b>
1.2.1	Ascertainment rate of total biopsy performed	2
1.2.2	Type of renal biopsy performed	3
1.2.3	Number of renal biopsy done on each individual patient	4
1.2.4	Demographic distribution of renal biopsy (Native and Graft)	5
1.2.4.1	Age distribution	5
1.2.4.2	Gender distribution	7
1.2.4.3	Racial distribution	7
1.2.5	Renal Biopsy Report Analysis	8
1.2.6	Histopathology specimen distribution to histopathology laboratories	9
1.3	<b>Native kidney biopsy</b>	<b>10</b>
1.3.1	Clinical Indications of renal biopsy	10
1.3.2	Histopathological Diagnosis	11
1.3.3	Histopathology findings in common clinical presentation	12
1.3.3.1	Histopathological diagnosis in patients with nephrotic syndrome	12
1.3.3.2	Histopathological diagnosis in patients with urinary abnormalities	12
1.3.3.3	Histopathological diagnosis in patients with nephritic-nephrotic syndrome	13
1.3.3.4	Histopathological diagnosis in patients with nephritic syndrome	13
1.3.3.5	Primary GN according to various age group	14
<b>CHAPTER 2</b>	<b>PRIMARY GLOMERULONEPHRITIS</b>	<b>15</b>
2.1	Introduction	16
2.2	<b>Minimal Change Disease</b>	<b>16</b>
2.2.1	Introduction	16
2.2.2	Patient population and characteristics	16
2.2.3	Clinical presentation	17
2.2.3.1	Clinical presentation by age	17
2.2.3.2	Clinical presentation by gender	18
2.2.4	Renal function at presentation	18
2.3	<b>Focal Segmental Glomerulosclerosis</b>	<b>19</b>
2.3.1	Introduction	19
2.3.2	Patient population and characteristics	19
2.3.3	Clinical Presentation	20
2.3.3.1	Clinical presentation by age	21
2.3.3.2	Clinical presentation by gender	21
2.3.4	Renal function at presentation	22
2.3.4.1	Renal function at presentation by age	22
2.3.4.2	Renal function at presentation by gender	23
2.4	<b>Idiopathic Membranous Nephropathy</b>	<b>24</b>
2.4.1	Introduction	24
2.4.2	Patient population and characteristics	24
2.4.3	Clinical presentation	25
2.4.3.1	Clinical Presentation by age	26
2.4.3.2	Clinical presentation by gender	26
2.4.4	Renal function at presentation	27

## CONTENT *(con't)*

2.5	<b>IgA Nephropathy (IgAN)</b>	28
2.5.1	Introduction	28
2.5.2	Patient population and characteristics	28
2.5.3	Clinical presentation	29
	2.5.3.1 Clinical presentation by age	30
	2.5.3.2 Clinical presentation by gender	30
2.5.4	Renal function at presentation	31
	<i>References</i>	32
<b>CHAPTER 3</b>	<b>SECONDARY GLOMERULONEPHRITIS</b>	33
3.1	<b>Lupus Nephritis</b>	34
3.1.1	Introduction	34
3.1.2	<b>Patient population and characteristics</b>	34
	3.1.2.1 Age at time of biopsy	34
	3.1.2.2 Gender distribution	34
	3.1.2.3 Racial prevalence	34
3.1.3	<b>Clinical presentation</b>	35
	3.1.3.1 Clinical Presentation by age	36
	3.1.3.2 Clinical presentation by gender	37
	3.1.3.3 Clinical Presentations by histopathology	38
3.1.4	<b>Renal function at presentation</b>	39
	3.1.4.1 Renal function at presentation by age group	39
	3.1.4.2 Renal function at presentation by gender	40
	3.1.4.3 Renal function at presentation by histopathology	40
3.1.5	<b>Histopathological diagnosis</b>	41
	3.1.5.1 Histopathological diagnosis by age	42
	3.1.5.2 Histopathological diagnosis by gender	43
	3.1.5.3 Histopathological diagnosis by clinical presentation	43
3.1.6	<b>Extra-renal involvement</b>	44
	3.1.6.1 American Rheumatological Association (ARA) criteria in lupus nephritis.	44
	3.1.6.2 ARA criteria in lupus nephritis by age	44
	3.1.6.3 ARA criteria in lupus nephritis by gender	44
	3.1.6.4 ARA criteria in lupus nephritis by histopathological findings	44
	3.1.6.5 Extra-renal involvement.	45
<b>CHAPTER 4</b>	<b>PAEDIATRIC RENAL BIOBSY</b>	46
4.1	Introduction	47
4.2	<b>Number of patients and renal biopsies</b>	47
	4.2.1 Total number of patients and native renal biopsies	47
	4.2.2 Number of native renal biopsies from various hospitals	47
4.3	Outcome of renal biopsies	47
4.4	Patient characteristics	47
4.5	<b>Clinical presentation</b>	48
	4.5.1 Clinical presentation at biopsy	48
	4.5.2 Renal function at biopsy	48
4.6	Diagnosis of paediatric renal biopsies	48
4.7	Renal histopathology diagnosis of children presenting with nephrotic syndrome	49
4.8	Renal histopathology diagnosis of children presenting with nephritic syndrome.	49
4.9	Causes of acute renal failure	50

## CONTENT *(con't)*

4.10	<b>Paediatric focal segmental glomerulosclerosis and minimal change disease</b>	50
4.10.1	Characteristics of paediatric focal segmental glomerulosclerosis and minimal change disease	50
4.10.2	Patient survival in focal segmental glomerulosclerosis and minimal change disease	51
4.10.3	Renal survival of patient with focal segmental glomerulosclerosis and minimal change disease	52
4.11	<b>Paediatric lupus nephritis</b>	53
4.11.1	Patient characteristics of paediatric lupus nephritis	53
4.11.2	Extra renal manifestation of paediatric SLE	53
4.11.3	Classification of paediatric lupus nephritis	53
4.12	Renal outcome	53
4.13	<b>Biopsy failure and complication</b>	54
4.13.1	Risk factors for biopsy failure	54
4.13.2	Complications	54
4.13.3	Risk factors for complication	55
	<i>References</i>	56
<b>CHAPTER 5</b>	<b>RENAL ALLOGRAFT BIOPSY</b>	57
5.1	Introduction	58
5.2	<b>Number of renal allograft biopsy</b>	58
5.2.1	Number of renal allograft biopsy by year	58
5.2.2	Number of renal allograft biopsy by year and site	58
5.2.3	Number of renal allograft biopsy by year and age group.	59
5.3	Clinical presentation at biopsy	59
5.4	Timing of renal allograft biopsy	60
5.5	<b>Biopsy procedure</b>	61
5.5.1	Biopsy method	61
5.5.2	Number of passes	61
5.5.3	Number of glomeruli obtained on biopsy	62
5.5.4	Type of complications	62
5.6	Histological diagnosis	63
	Appendix I	
	Appendix II	
	Appendix III	
	Appendix IV	

## LIST OF TABLES

		Page
Table 1.2.1	Total number of reported and unreported renal biopsies by centres, 2005 - 2007	2
Table 1.2.2	Distribution of reported native and graft renal biopsies by centres, 2005-2007	3
Table 1.2.3 (a)	Distribution of native renal biopsy in patients by number of episodes / attempts	4
Table 1.2.3 (b)	Distribution of renal allograft biopsy in patients by number of episodes / attempts	4
Table 1.2.4.1 (a)	Age distribution of native renal biopsy, 2005-2007	5
Table 1.2.4.1 (b)	Age distribution of renal allograft biopsy, 2005-2007	5
Table 1.2.4.1 (c)	Age group distribution of reported renal biopsies by state, 2005-2007	6
Table 1.2.4.2 (a)	Gender distribution of native renal biopsy, 2005-2007	7
Table 1.2.4.2 (b)	Gender distribution of renal allograft biopsy, 2005-2007	7
Table 1.2.4.3 (a)	Racial distribution of native renal biopsy, 2005-2007	7
Table 1.2.4.3 (b)	Racial distribution of renal allograft biopsy, 2005-2007	7
Table 1.2.5	Number of glomeruli obtained at each biopsy by centres, 2005-2007	8
Table 1.2.6 (a)	Distribution of biopsy specimens to histopathology laboratories by participating centres, 2005-2007	9
Table 1.2.6 (b)	Histopathology laboratories receiving renal biopsy specimens, 2005-2007	10
Table 1.3.1 (a)	Indications for native renal biopsies, 2005-2007.	10
Table 1.3.1 (b)	Renal function at time of biopsy	10
Table 1.3.2	Histopathology of all native renal biopsies, 2005-2007	11
Table 1.3.3.1	Histopathological diagnosis in patients presenting with nephrotic syndrome	12
Table 1.3.3.2	Histopathological diagnosis in patients presenting with urine abnormalities, 2005-2007	12
Table 1.3.3.3	Histopathological diagnosis in patients presenting with nephritic-nephrotic syndrome, 2005-2007	13
Table 1.3.3.4	Histopathological diagnosis in patients presenting with nephritic syndrome, 2005-2007	13
Table 1.3.3.5	Primary GN according to the various age group, 2005 -2007	14
Table 2.2.2 (a)	Demographic characteristics for minimal change disease, 2005-2007	16
Table 2.2.2 (b)	Age group at time of biopsy (years) for minimal change disease, 2005-2007	16
Table 2.2.3 (a)	Overall clinical presentation for minimal change disease, 2005-2007	17
Table 2.2.3 (b)	Presence of hypertension in minimal change disease, 2005-2007	17
Table 2.2.3.1	Clinical presentation by age group for minimal change disease, 2005-2007	17
Table 2.2.3.2	Clinical presentation by gender for minimal change disease, 2005-2007	18
Table 2.2.4	Renal function at presentation by age group for minimal change disease, 2005-2007	18
Table 2.3.2 (a)	Demographic characteristics for FSGS, 2005-2007	19
Table 2.3.2 (b)	Age group at time of biopsy (years) for FSGS, 2005-2007	19
Table 2.3.3 (a)	Overall clinical presentation for FSGS, 2005-2007	20
Table 2.3.3 (b)	Presence of hypertension in FSGS, 2005-2007	20
Table 2.3.3.1	Clinical presentation by age group for FSGS, 2005-2007	21
Table 2.3.3.2	Clinical presentation by gender for FSGS, 2005-2007	21



## LIST OF TABLES *(con't)*

Table 2.3.4 (a)	Impaired renal function in FSGS by year, 2005-2007	22
Table 2.3.4.1	Renal function at presentation by age group for FSGS, 2005-2007	22
Table 2.3.4.2	Renal function at presentation according to gender for FSGS, 2005-2007	23
Table 2.4.2	Demographic characteristics for idiopathic membranous nephropathy, 2005-2007	24
Table 2.4.3 (a)	Overall clinical presentation for idiopathic membranous nephropathy, 2005-2007	25
Table 2.4.3 (b)	Presence of hypertension in idiopathic membranous nephropathy, 2005-2007	25
Table 2.4.3.1	Clinical presentation by age group for idiopathic membranous nephropathy, 2005-2007	26
Table 2.4.3.2	Clinical presentation by gender for idiopathic membranous nephropathy, 2005-2007	26
Table 2.4.4 (a)	Renal function at presentation by age group for idiopathic membranous nephropathy, 2005-2007	27
Table 2.4.4 (b)	Renal function at presentation according to gender for idiopathic membranous nephropathy, 2005-2007	27
Table 2.5.2 (a)	Demographic characteristics of patients with IgA nephropathy, 2005-2007	28
Table 2.5.2 (b)	Age group at time of biopsy (years) for IgA nephropathy, 2005-2007	28
Table 2.5.3 (a)	Overall clinical presentation for IgA nephropathy, 2005-2007	29
Table 2.5.3 (b)	Presence of hypertension in IgA nephropathy, 2005-2007	29
Table 2.5.3.1	Clinical presentation by age group for IgA nephropathy, 2005-2007	30
Table 2.5.3.2	Clinical presentation by gender for IgA nephropathy, 2005-2007	30
Table 2.5.4 (b)	Renal function at presentation by age group for IgA nephropathy, 2005-2007	31
Table 2.5.4 (c)	Renal function at presentation according to gender for IgA nephropathy, 2005-2007	32
Table 3.1.3	Clinical presentation by year, 2005-2007	35
Table 3.1.3.1 (a)	Clinical presentation by age group, 2005-2007	36
Table 3.1.3.3 (a)	Clinical presentations by histopathology, 2005-2007	38
Table 3.1.4.1	Renal function by age group, 2005-2007	39
Table 3.1.4.3	Renal function at presentation by histopathology, 2005-2007	40
Table 3.1.5	Histopathological diagnosis, 2005-2007	41
Table 3.1.5.1	Histopathological diagnosis by age group, 2005-2007	42
Table 3.1.5.2	Histopathological diagnosis by gender, 2005-2007	43
Table 3.1.5.3	Histopathological diagnosis by clinical presentation, 2005-2007	43
Table 3.1.6.1	ARA criteria in lupus nephritis, 2005-2007	44
Table 3.1.6.5 (a)	Extra-renal involvement by gender, 2005-2007	45
Table 3.1.6.5 (b)	Mucocutaneous involvement by gender, 2005-2007	45
Table 4.2.2	Number of renal biopsies	47
Table 4.4	Gender and racial distribution	47
Table 4.5.1	Clinical presentation at biopsy	48
Table 4.5.2	Renal function at biopsy	48
Table 4.6	Diagnosis of paediatric renal biopsies	48
Table 4.7	Renal histopathology diagnosis of children presenting with nephrotic syndrome	49
Table 4.8	Renal histopathology diagnosis of children presenting with nephritic syndrome	49
Table 4.9	Causes of acute renal failure in children who underwent renal biopsy	50

## LIST OF TABLES *(con't)*

Table 4.10.1	Characteristic of paediatric focal segmental glomerulosclerosis and minimal change disease	50
Table 4.10.2	Patient survival for focal segmental glomerulosclerosis and minimal change disease	51
Table 4.10.3	Renal survival of patient with focal segmental glomerulosclerosis and minimal change disease	52
Table 4.11.3	Classification of paediatric lupus nephritis	53
Table 4.12	Causes of end stage renal disease in children who underwent renal biopsy	53
Table 4.13.1	Risk factors for biopsy failure	54
Table 4.13.2	Frequency of complication	54
Table 4.13.3	Risk factors for complication	55
Table 5.2.1	Number of renal allograft biopsy, 2004-2007	58
Table 5.2.2	Number of renal allograft biopsy by year and SDP, 2004-2007	58
Table 5.2.3	Renal allograft biopsy by year and age group, rate (per million population), 2004-2007	59
Table 5.3	Indications for renal allograft biopsy, 2004-2007	59
Table 5.4	Timing of renal allograft biopsy, 2004-2007	60
Table 5.5.1	Biopsy method, 2004-2007	61
Table 5.5.2	Number of passes, 2004-2007	61
Table 5.5.3	Number of glomeruli obtained on biopsy, 2004-2007	62
Table 5.5.4	Type of complications, 2004-2007	62
Table 5.6	Histological diagnosis, 2004-2007	63

## LIST OF FIGURES

	Page
Figure 1.3.3.5	14
Figure 2.2.2 (b)	16
Figure 2.2.4	18
Figure 2.3.2 (b)	19
Figure 2.3.3 (a)	20
Figure 2.3.3.2	21
Figure 2.3.4.1 (a)	22
Figure 2.3.4.1 (b)	22
Figure 2.3.4.2	23
Figure 2.4.2	24
Figure 2.4.3 (a)	25
Figure 2.4.3.2	26
Figure 2.4.4 (a)	27
Figure 2.5.2 (b)	28
Figure 2.5.3 (a)	29
Figure 2.5.4 (a)	31
Figure 2.5.4 (b)	31
Figure 3.1.2.1	34
Figure 3.1.2.2	34
Figure 3.1.2.3	34
Figure 3.1.3 (a)	35
Figure 3.1.3 (b)	35
Figure 3.1.3.1 (a)	36
Figure 3.1.3.1 (b)	36
Figure 3.1.3.1 (c)	36
Figure 3.1.3.2 (a)	37
Figure 3.1.3.2 (b)	37
Figure 3.1.3.2 (c)	37
Figure 3.1.3.3 (a)	38
Figure 3.1.3.3 (b)	38
Figure 3.1.3.3 (c)	38
Figure 3.1.4.1	39
Figure 3.1.4.2	40
Figure 3.1.4.3	41
Figure 3.1.5.1	42
Figure 3.1.6.2	44

## LIST OF FIGURES *(con't)*

Figure 3.1.6.3	ARA criteria in lupus nephritis by gender, 2005-2007	44
Figure 3.1.6.4	ARA criteria in lupus nephritis by histopathology, 2005-2007	44
Figure 3.1.6.5 (a)	Extra-renal involvement by gender, 2005-2007	45
Figure 3.1.6.5 (b)	Mucocutaneous involvement by gender, 2005-2007	45
Figure 4.10.2	Patient survival by focal segmental glomerulosclerosis and minimal change disease	51
Figure 4.10.3	Renal survival by focal segmental glomerulosclerosis and minimal change	52
Figure 5.2.1	Number of renal allograft biopsy, 2004-2007	58
Figure 5.4	Timing of renal allograft biopsy, 2004-2007	60
Figure 5.5.1	Biopsy method (censored for missing data), 2004-2007	61
Figure 5.5.2	Number of passes, 2004-2007	61
Figure 5.5.3	Number of glomeruli obtained on biopsy, 2004-2007	62

# REPORT SUMMARY

## Chapter 1: Overview of Renal Biopsy in Malaysia

- A total of 2419 renal biopsies were done over 3 years (2005-2007). Twenty-one MOH centers contributed data and these were analyzed in this first MRRB report.
- However Paediatric Institute, HKL started data collection from 1999 and the Nephrology department HKL started data collection on renal allograft biopsies from 2004. This will be discussed in their respective chapters.
- The average ascertainment rate for 2005-2007 was 93.3%.
- 281(11.6%) of these were graft biopsies.
- About a fifth (19%) was done in children under 15 years of age. Majority (75%) was done in patients between 15 – 55 years of age. Only 4% was done in patients older than 55 years of age.
- 21.3% of the biopsies yielded less than 10 glomeruli; the cutoff number for an adequate biopsy.
- More than half (55%) of the biopsies done were sent out to another (tertiary) centre for processing and reporting.
- The main indications for biopsy were nephrotic syndrome (46%) and asymptomatic urinary abnormalities (26%).
- FSGS (26.1%) and minimal change disease (25.8%) were the commonest histopathological diagnosis in patients presenting with nephrotic syndrome.
- Lupus nephritis (52%) was the commonest histopathological diagnosis in patients who presented with acute nephritic syndrome.
- The commonest primary GN reported was FSGS (36%) followed by minimal change (32%) and IgA nephropathy (15%).
- The commonest secondary GN was lupus nephritis (87%).

## Chapter 2: Primary Glomerulonephritis

- The commonest primary GN reported was focal segmental glomerulosclerosis (FSGS), followed by minimal change.

### Minimal change disease

- Accounted for 32% of total primary GN.
- Mean age at the time of biopsy was 28.6 + 12.5 years.
- Male to female ratio was 2:1.
- Nephrotic syndrome was the commonest clinical presentation.
- 22% had e-GFR <60 ml/min at time of biopsy.
- There was a higher risk of renal impairment with increasing age.

### Focal Segmental Glomerulosclerosis (FSGS)

- Accounted for 36% of total Primary GN.
- Mean age at the time of biopsy was 32.1 + 13.5 years.
- Male to female ratio was 1.3:1.
- Nephrotic syndrome was the commonest clinical presentation.
- 43% had e-GFR < 60 ml/min at time of biopsy.
- There was a higher risk of renal impairment with increasing age.

## REPORT SUMMARY *(con't)*

### **Idiopathic membranous nephropathy**

- Accounted for only 8% of total primary GN.
- Mean age at biopsy was 46 + 15.5 years.
- There was bimodal peak in incidence.
- Male to female ratio was 1.1:1.
- 71% presented with nephrotic syndrome.
- 38% had e-GFR < 60 ml/min at time of biopsy.
- There was a higher risk of renal impairment with increase age and male gender.

### **IgA nephropathy**

- Accounted for 15% of total primary GN Accounts for only 8% of total primary GN.
- Mean age at biopsy was 33.7 + 12.4 years.
- There was female preponderance with male to female ratio was 0.8 : 1.
- 50% presented with asymptomatic urine abnormalities and up to 25% presented with nephrotic syndrome.
- 48% had e-GFR < 60 ml/min at time of biopsy.
- There was a higher risk of renal impairment with increase age and male gender.

## **Chapter 3: Secondary Glomerulonephritis**

### **Lupus nephritis**

- Lupus nephritis was the commonest secondary GN.
- The mean age of lupus nephritis in adults (>15 years old) was 30.2 + 10.3.
- The female to male ratio was 6.2:1.
- The most common clinical presentation of lupus nephritis was urine abnormalities (39%), followed by nephrotic syndrome (29%).
- The commonest histopathological finding was WHO or ISN/RPS class IV or IV+V. (59%).
- There were no clear correlation between histopathological findings and clinical presentation. However, class IV or class IV+V were more likely to present with symptomatic renal disease (52%).
- The prevalence of hypertension was higher in class IV or class IV+V .
- The prevalence of impaired kidney function correlated with histopathological findings. Class IV are more likely to have impaired function.

## **Chapter 4: Paediatric Renal Biopsy**

- Paediatric Institute Hospital Kuala Lumpur contributed data from 1999. Subsequently 6 other MOH paediatric nephrology centers submitted data following the establishment of MRRB.
- 640 renal biopsies were performed in 579 children. 606 (94.7%) were assessed to be adequate for interpretation.
- More renal biopsies were performed in girls (52.2%). This was attributed to the higher number of biopsies performed on children with lupus nephritis.
- Nephrotic syndrome was the most frequent clinical presentation at biopsy.
- The commonest histopathological diagnoses were FSGS, lupus nephritis and MCD and this accounted for 27.2%, 26.1% and 17.8 % respectively.
- IgA nephropathy accounted for only 4.4%. This may not be an accurate indicator of incidence of IgA in Malaysian children due to differences in biopsy practices.

## REPORT SUMMARY *(con't)*

- Children who presented with acute renal failure at the time of biopsy had histopathological diagnoses of post infectious GN (29.8%), lupus nephritis (29.8%) FSGS (8.7%) and HUS/TTP (5.8%). In contrast HUS/TTP is the leading cause of acute renal failure in North America and Europe.
- Children with FSGS had significantly lower creatinine clearance at biopsy. There were also more Indian children in the FSGS group compared to the MCD group.
- Comparing FSGS and MCD groups there were no differences in the patients' 3 and 5 years survival from the time of biopsy. However FSGS had poorer renal survival both at 3 years (92%) and 5 years (82%). Renal survival for the MCD group was 94% at both 3 and 5 years.
- In the paediatric lupus group class IV and V+IV was the commonest histopathological finding on biopsy at 65.7%.
- Complications post-renal biopsy was reported in 5.4%. Gross haematuria was the commonest complication at 4.5%.
- Risk of complication was highest in those who had dialysis dependant renal failure. Age, Hb, lupus nephritis and needle size were not found to have any significant impact.

### **Chapter 5: Renal Allograft Biopsy**

- Department of Nephrology, Hospital Kuala Lumpur contributed data since 2004 and by 2005, submission of data were performed by other MOH hospitals.
- The number of renal allograft biopsy has almost doubled over the last 4 years despite a decreased in the number of new transplants. This was attributed to the changing trend in the management of renal transplant recipients.
- 92% of the renal allograft biopsies were performed in 4 centers in the Klang valley. Three of these centres were actively involved in the care of new recipients in the perioperative and immediate postrenal transplant period. A large number of transplant recipients were also followed up in these centers.
- The commonest indication for renal allograft biopsy was impaired renal allograft dysfunction and acute renal allograft dysfunction.
- There was a marked increased in the number of renal allograft biopsies performed after 1 year post transplant in both 2006 and 2007. This reflected the increasing importance of chronic allograft nephropathy.
- Most renal allograft biopsies were performed under ultrasound guidance and this accounted for 84% in 2007.
- Complications were uncommon and major complications requiring intervention occurred in less than 2%.
- Acute rejection (acute and borderline) has remained the commonest histological diagnosis. This accounted for 31-34% of all renal allograft biopsies.