

# 19<sup>TH</sup> REPORT OF THE MALAYSIAN DIALYSIS & TRANSPLANT REGISTRY 2011

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Malaysian Society of Nephrology



Association of Dialysis  
Medical Assistants and Nurses

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2011

**Sponsors:**

Malaysian Society of Nephrology  
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| <b>Clinical Registry Assistant Manager</b> | Choo Cheh Loo<br>Suhazelini Ali |   |

## **ABOUT THE MALAYSIAN DIALYSIS AND TRANSPLANT REGISTRY (MDTR)**

The Malaysia Dialysis and Transplant Registry (MDTR) collects information on patients with end stage renal disease (ESRD) on renal replacement therapy (RRT) in Malaysia.

### **Objectives:**

The objectives of the registry are as follows:

1. **Describe the natural history of ESRD.** The registry shall describe the characteristics of patients with ESRD, its management, and patient survival and quality of life outcomes with treatment; and shall describe variation thereof across different groups, healthcare sectors or geographic regions, and its secular trend over time in Malaysia.
2. **Determine effectiveness of treatments for ESRD.** The registry shall determine clinical effectiveness and cost effectiveness of treatments of ESRD in real-world clinical practices in Malaysia.
3. **Monitor safety and harm of products and services used in the treatment of ESRD.** The registry shall serve as an active surveillance system for the occurrence of unexpected or harmful events for products and services.
4. **Evaluating access to and quality of treatment services for ESRD.** The registry shall assess differences between providers or patient populations based on performance measures that compare treatments provided or outcomes achieved with "gold standards" (e.g., evidence-based guidelines) or comparative benchmarks for specific health outcomes (e.g., risk-adjusted survival rates). Such programs may be used to identify disparities in access to care, demonstrate opportunities for improvement, establish differentials for payment by third parties, or provide transparency through public reporting.
5. **To maintain the national renal transplant waiting list electronically – the eMOSS or electronic Malaysian Organ Sharing System.** The dialysis registry shall maintain and update patients on dialysis who do not have contraindications to kidney transplantation onto the national renal transplant waiting list according to published agreed criteria. This list is available on the web for ready access by the transplant physicians any time a deceased kidney becomes available

### ***Registry design:***

This is a multi-center, observational cohort study designed to evaluate the health outcomes of patients with ESRD undergoing treatment at participating clinical centres. Patient inclusion criterion is deliberately broad and shall include any patient with a confirmed diagnosis of ESRD.

There is no prescribed study visits. Patient shall attend the clinical site as and when required per the standard of care at the site. Required data shall be collected as they become available.

1. A clinical site shall notify all new patients to the registry, and shall continue to do so until the termination of the registry. Patients shall be follow-up for life.
2. Participation. Site shall notify the patients' treatment to the registry in a calendar year of its participation. A site shall similarly notify patients during each year of its participation in the registry.

### ***Registry study population:***

The registry study population consists of male or female patients with ESRD to be recruited from participating sites in Malaysia. Participation in this study is voluntary. However, in accordance with the Private Health-care Facilities Act 1998 (AKTA 586), all dialysis health facility are required to submit data to the Malaysian Dialysis and Transplant Registry (MDTR).

All clinical centres or sites that satisfy the following selection criteria will be invited to participate:

1. This registry is opened to all clinical sites that provide RRT services for patients with ESRD in Malaysia.
2. Each site shall have a Principal Investigator who is also a licensed physician / Surgeon and a qualified professional experienced with ESRD management.
3. Each site shall appoint a Site Coordinator (SC). The SC is the person at the participating clinical site who is responsible for all aspects of registry management and data collection at site, and who will liaise with the Clinical Registry Manager (CRM) and Clinical Registry Assistant (CRA) at the Registry Coordinating Centre (RCC).
4. Each site shall accept responsibility for data collection, as well as for ensuring proper record keeping and registry document filing.
5. Each site shall agree to comply with the registry procedures and shall be willing to be subjected to ongoing review of data by CRM or CRA or other representative of MDTR. This may include one or more site visits by prior arrangement

### ***Patient eligibility criteria:***

- All new patients with ESRD undergoing treatment at a participating clinical site are eligible for entry into the registry.
- In addition, a site may opt to enter existing patients on follow-up at the site into the registry.

### ***Registry data:***

The data elements to be collected by the registry shall be relevant and reliable with modest burden to sites, shall comply with existing data standard where this exists, shall be compatible with established data set used by other existing registries, and shall employ standard terminology (dictionary) where available.

### ***Two datasets are defined:***

- Core dataset: These are data elements that are needed to address the key questions for which the registry was created.
- Non-core dataset: these are speculative data elements included to provide an opportunity to generate hypotheses or to explore other subsidiary questions not of primary interest to the registry.

The data domains and related specific data elements to be collected by this registry is tabulated below:

|                                       |   |
|---------------------------------------|---|
| A Identifier                          | Name, NRIC number, Other identifying document numbers, Address, Contact numbers   |
| B Demographics                        | Age, Sex, Ethnicity, Educational attainment, Occupation, Household Income group, Weight & Height, Use of tobacco, Funding for Treatment |
| C Medical history                     | Medical history/ comorbidities, Family history  |
| D ESRD diagnosis                      | Date of first diagnosis, Date re-entering each RRT.   |
| E Laboratory investigations           | Date & time of tests, Blood chemistry, Hematology, Serology   |
| F Treatment                           | Modalities of RRT- haemodialysis, peritoneal dialysis; treatment of other uraemic complications; kidney transplantation                 |
| G Outcomes                            | Patient survival; death, date of death, cause of death<br>Quality of Life/ Work rehabilitation status                                   |
| H Economics                           | Source of funding for dialysis treatment, and immunosuppressive drug treatment for transplantation                                      |
| J Healthcare provider characteristics | Sector providing dialysis treatment, (private, public or NGO),  |

## PARTICIPATING HAEMODIALYSIS CENTRES 2011

### Johor Darul Takzim

1. Batu Pahat Hospital
2. Batu Pahat Rotary
3. BP Renal Care ( Rengit)
4. BP Renal Care (Batu Pahat)
5. BP Renal Care (Kluang)
6. BP Renal Care (Segamat)
7. BP Renal Care Simpang Renggam
8. BP Renalcare (Yong Peng)
9. Che Eng Khor Centre
10. Hospital Pakar Sultanah Fatimah (Muar)
11. JB Lions MAA-Medicare Charity Dialysis Centre (1)
12. JB Lions MAA-Medicare Charity Dialysis Centre (2)
13. JJ Lions Dialysis Centre
14. Johor Quarries Association Dialysis Centre
15. Johor Specialist Hospital
16. Kluang Hospital
17. Kluang Utama Specialist Hospital
18. Kota Tinggi Hospital
19. Mersing Hospital
20. Mersing Rotary Centre
21. Muar Dialysis
22. Muar Lions Renal Centre
23. Persatuan Membaiki Akhlak-Che Luan Khor\_NKF
24. Pertubuhan Hemodialisis Muhibbah
25. Pertubuhan Hemodialisis Muhibbah Segamat (Labis)
26. Pertubuhan Kebajikan Amitabha
27. Pontian Hospital
28. Pontian Rotary Haemodialysis Centre
29. Premier Renal Care
30. Prima Dialysis Kluang
31. Prima Dialysis Masai
32. Pusat Dialisis Nefro Utama (Johor Bahru)
33. Pusat Dialisis Nefro Utama (Kota Tinggi)
34. Pusat Dialisis Nefro Utama Pontian
35. Pusat Dialisis Perbadanan Islam (Johor Bahru)
36. Pusat Dialisis Perbadanan Islam (Pontian)
37. Pusat Dialisis Waqaf An-nur (Batu Pahat)
38. Pusat Dialisis Waqaf An-nur (Kota Raya)
39. Pusat Dialisis Waqaf An-nur (Pasar Gudang)
40. Pusat Dialysis Ikhlas
41. Pusat Dialysis Makmur (Senai)
42. Pusat Haemodialisis Suria (Tangkak)
43. Pusat Haemodialysis Amal Lexin
44. Pusat Hemodialisis Ar-Raudhah
45. Pusat Hemodialisis Bandar Mas
46. Pusat Hemodialisis Darul Takzim (Batu Pahat)
47. Pusat Hemodialisis Darul Takzim (Parit Raja)
48. Pusat Hemodialisis Hidayah
49. Pusat Hemodialisis Iman
50. Pusat Hemodialisis MAIJ
51. Pusat Hemodialisis Mawar (Yong Peng) HD Unit
52. Pusat Hemodialisis Muar
53. Pusat Hemodialisis Rotary Kota Tinggi
54. Pusat Hemodialisis Rotary Kulai
55. Pusat Hemodialisis Sejahtera (Batu Pahat)
56. Pusat Hemodialisis Sejahtera Muar
57. Pusat Hemodialisis Syifa (Bukit Gambir)
58. Pusat Kesihatan Universiti (UTHO)
59. Pusat Perubatan Perbadanan Islam (Segamat)
60. Pusat Rawatan Perbadanan Islam (Kota Tinggi)
61. Puteri Specialist Hospital
62. Segamat Hospital
63. Sinar Haemodialysis (Batu Pahat)
64. Sinar Haemodialysis (Parit Raja)
65. Sultan Ismail Hospital
66. Sultan Ismail Hospital (Paed)
67. Sultanah Aminah Hospital
68. Systemic Dialysis Centre
69. Systemic Dialysis Centre (2)
70. Tangkak Hospital
71. Tangkak Lions Renal Centre
72. Temenggong Seri Maharaja Tun Ibrahim Hospital
73. The Rotary HD Centre (Johor Bahru)
74. Total Kidney Care Haemodialysis
75. Yayasan Pembangunan Keluarga Johor-NKF
76. Yayasan Rotary Kluang
77. Zhi En Dialysis Centre



## PARTICIPATING HAEMODIALYSIS CENTRES 2011

### Kedah Darul Aman

- |  |  |
|--|--|
| 78. Asia Renal Care (Penang) Kulim           | 96. Pusat Haemodialisis Zakat Kedah                              |
| 79. Baling Hospital                          | 97. Pusat Hemodialisis Beng Siew                                 |
| 80. Buddhist Tzu Chi Dialysis Centre (Kedah) | 98. Pusat Hemodialisis Mergong                                   |
| 81. Caring Dialysis (Sg. Petani-Selatan)     | 99. Pusat Hemodialisis S P                                       |
| 82. Caring Dialysis (Sungai Petani-Utara)    | 100. Pusat Hemodialisis Syifa (Pendang)                          |
| 83. Kuala Nerang Hospital                    | 101. Pusat Kesihatan Jitra                                       |
| 84. Kulim Hospital                           | 102. Pusat Pakar Dialisis Traktif (Jitra)                        |
| 85. Langkawi Hospital                        | 103. Pusat Rawatan Hemodialisis Yayasan Emkay & Sultanah Bahiyah |
| 86. Metro Specialist Hospital                | 104. Putra Haemodialysis Centre                                  |
| 87. Northern Dialysis Centre                 | 105. Putra Medical Centre  |
| 88. Pantai Hospital Sungai Petani            | 106. Renal Care (Kedah)  |
| 89. Pertubuhan Bakti Fo En Bandar Kulim      | 107. Sik Hospital  |
| 90. Pusat Dialisis Albukhary                 | 108. Sultan Abdul Halim Hospital                                 |
| 91. Pusat Dialisis Marjina                   | 109. Sultanah Bahiyah Hospital                                   |
| 92. Pusat Dialisis NKF-Kelab Lions Alor Star | 110. Superkids Trinity-NKF Dialysis Centre                       |
| 93. Pusat Dialisis Ibnu Sina (Kuala Ketil)   | 111. Yan Hospital  |
| 94. Pusat Dialisis K K Tan (Sg Petani)       | 112. Zaharah Dialysis Center                                     |
| 95. Pusat Haemodialisis Dr. Ismail           |  |

### Kelantan Darul Naim

- |   |   |
|---|---|
| 113. Gua Musang Hospital                    | 124. Pusat Dialisis Yayasan Buah Pinggang Kebangsaan (Kota Bharu) |
| 114. Hudaz Dialysis Centre                  | 125. Pusat Hemodialisis Berkat Seroja (Machang)                   |
| 115. Jeli Hospital                          | 126. Pusat Perubatan Tentera (Kota Bharu)                         |
| 116. KB Rotary-MAA Charity Dialysis         | 127. Pusat Rawatan Dialisis Islah (Kota Bharu)                    |
| 117. Keluarga Bahagia Haemodialisis         | 128. Raja Perempuan Zainab II Hospital                            |
| 118. Kuala Krai Hospital                    | 129. Renal-Link (Kelantan)  |
| 119. Lions Club Kota Budaya Dialysis Centre | 130. Tanah Merah Hospital   |
| 120. Machang Hospital                       | 131. Tengku Anis Hospital   |
| 121. Nephrolife Dialysis Centre             | 132. Tumpat Hospital  |
| 122. Pakar Perdana Hospital                 | 133. Universiti Sains Malaysia Hospital                           |
| 123. Pasir Mas Hospital                     |   |

### Negeri Melaka

- |  |  |
|--|--|
| 134. 94 Hospital Angkatan Tentera (Terendak)                       | 146. Pusat Dialysis Comfort                            |
| 135. Alor Gajah Dialysis Centre                                    | 147. Pusat HD SJAM Bacang Melaka                       |
| 136. Alor Gajah Hospital   | 148. Pusat Hemodialisis Impian                         |
| 137. Damai Medical & Heart Clinic                                  | 149. Pusat Hemodialisis Krisda                         |
| 138. Jasin Hospital  | 150. Pusat Hemodialisis SJAM Pulau Sebang              |
| 139. Mahkota Medical Centre  | 151. Pusat Hemodialisis Yayasan Toh Puan Zurina        |
| 140. Melaka Hospital   | 152. Pusat Hemodialysis Suria (Melaka)                 |
| 141. Pantai Air Keroh Hospital                                     | 153. Pusat Rawatan Dialisis Nefro Utama (Masjid Tanah) |
| 142. Pertubuhan Kebajikan Hemodialisis Hospital Pakar Putra Melaka | 154. Sinar Hemodialisis                                |
| 143. Pusat Dialisis Giat Kurnia (Masjid Tanah)                     | 155. Tenang Haemodialysis Centre                       |
| 144. Pusat Dialisis Giat Kurnia (Merlimau)                         | 156. Tenang Haemodialysis Jasin                        |
| 145. Pusat Dialisis Nephrocare (Bukit Piatu)                       |  |

## PARTICIPATING HAEMODIALYSIS CENTRES 2011

### Negeri Sembilan Darul Khusus

- |   |  |
|---|--|
| 157. D'kasih Hemodialysis                           | 174. Pusat Hemodialisis Mawar (Mantin)               |
| 158. Giat Kurnia Dialysis Centre (Nilai)            | 175. Pusat Hemodialisis Mawar N. Sembilan (Bahau)    |
| 159. Haemodialysis Mawar Gemas                      | 176. Pusat Hemodialisis Mawar N. Sembilan (Lukut)    |
| 160. Jelevu Hospital                                | 177. Pusat Hemodialisis Mawar N. Sembilan (Rantau)   |
| 161. Jempol Hospital                                | 178. Pusat Hemodialisis Mawar N. Sembilan (Seremban) |
| 162. Persada Dialysis Centre                        | 179. Pusat Hemodialisis Mutiara                      |
| 163. Port Dickson Hospital                          | 180. Pusat Pakar Dialisis Traktif (Kuala Pilah)      |
| 164. Pusat Dialisis Suria (Tampin)                  | 181. Pusat Waqaf An-nur (Senawang)                   |
| 165. Pusat Dialisis Veteran ATM (Senawang)          | 182. Seremban Specialist Hospital                    |
| 166. Pusat Dialisis Azalea                          | 183. Sinar Identiti                                  |
| 167. Pusat Haemodialisis Renalife                   | 184. Tampin Hospital                                 |
| 168. Pusat Haemodialisis USIM                       | 185. Tuanku Ampuan Najihah Hospital                  |
| 169. Pusat Haemodialisis Suria (Senawang)           | 186. Tuanku Ja'afar Hospital                         |
| 170. Pusat Hemodialisis Bayu                        | 187. Tuanku Ja'afar Hospital (Paed)                  |
| 171. Pusat Hemodialisis Berkat Seroja (Kuala Pilah) | 188. YKN Dialisis Kuala Pilah                        |
| 172. Pusat Hemodialisis Gemencheh                   |  |
| 173. Pusat Hemodialisis Mawar (Kuala Pilah)         |  |

### Pahang Darul Makmur

- |   |   |
|---|---|
| 189. Bentong Hospital                   | 205. Pekan Hospital                                     |
| 190. Caring Dialysis (Jerantut)         | 206. Pusat Hemodialisis Islam Makmur                    |
| 191. Fitra Med                          | 207. Pusat Hemodialisis Jerantut                        |
| 192. Hospital Sultanah Hajjah Kalsom    | 208. Pusat Hemodialisis Suria (Bentong)                 |
| 193. Jengka Hospital                    | 209. Pusat Rawatan Dialisis Fitra (Jengka)              |
| 194. Jerantut Hospital                  | 210. Pusat Rawatan Dialisis Fitra (Kuantan)             |
| 195. Kuala Lipis Hospital               | 211. Pusat Rawatan Dialisis Tun Abdul Razak-NKF Kuantan |
| 196. Kuantan Clinical Diagnostic Centre | 212. Pusat Rawatan Fitra (Muadzam)                      |
| 197. Kuantan Medical Centres            | 213. Raub Hospital                                      |
| 198. Kuantan Specialist Centre          | 214. SJAM-KPS Haemodialysis Centre 9 (Raub)             |
| 199. Lipis Dialysis Centre              | 215. Sultan Haji Ahmad Shah Hospital                    |
| 200. MAA-Medicare Charity (Mentakab)    | 216. Suria Dialysis Centre (Temerloh)                   |
| 201. Mentakab Haemodialysis Unit        | 217. Tengku Ampuan Afzan Hospital                       |
| 202. Muadzam Shah Hospital              | 218. Tengku Ampuan Afzan Hospital (Paed)                |
| 203. Nur Iman Dialysis Pahang           |   |
| 204. Pahang Buddhist Association        |   |

### Perak Darul Ridzuan

- |  |  |
|--|--|
| 219. 96 Hospital Angkatan Tentera (Lumut)        | 230. Kuala Kangsar Hospital                            |
| 220. Batu Gajah Hospital                         | 231. MAA-Medicare Charity (Teluk Intan)                |
| 221. Berchaam Dialysis Centre                    | 232. MB Star Rawatan Dialisis                          |
| 222. C.S. Loo Kidney & Medical Specialist Centre | 233. Nur Dialysis Centre                               |
| 223. Caring Dialysis Centre (Sg Siput)           | 234. Parit Buntar Hospital                             |
| 224. Caring Dialysis Centre (Teluk Intan)        | 235. Persatuan Amal Chin Malaysia Barat                |
| 225. Changkat Melintang Hospital                 | 236. Pertubuhan Perkhidmatan Haemodialisis Ar-Ridzuan  |
| 226. Fatimah Hospital                            | 237. Pertubuhan Perkhidmatan Hemodialisis AIXIN Kerian |
| 227. Gerik Hospital                              |  |
| 228. Hope Haemodialysis Society Ipoh             |  |
| 229. Kampar Hospital                             |  |

## PARTICIPATING HAEMODIALYSIS CENTRES 2011

### Perak Darul Ridzuan (cont)

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|--|--|
| 238. PMA Chan Meng Khor-MAA Medicare Charity Dialysis Centre | 259. Pusat Hemodialisis Qaseh                          |
| 239. Pulau Pangkor Hospital                                  | 260. Pusat Hemodialisis Nyata Segar                    |
| 240. Pusat Dialisis Darul Iltizam (Slim River)               | 261. Pusat Rawatan Dialisis Wan Nong                   |
| 241. Pusat Dialisis Darul Iltizam (Taiping)                  | 262. Putri Haemodialysis Centre (Ipoh)                 |
| 242. Pusat Dialisis Ehsan Perak (Parit Buntar)               | 263. Raja Permaisuri Bainun Hospital                   |
| 243. Pusat Dialisis Intan                                    | 264. Raja Permaisuri Bainun Hospital (Home)            |
| 244. Pusat Dialisis Kuala Kangsar                            | 265. Renal Care (Ipoh Specialist)                      |
| 245. Pusat Dialisis Makmur (Batu Gajah)                      | 266. Selama Hospital                                   |
| 246. Pusat Dialisis Mutiara                                  | 267. Seri Manjung Hospital                             |
| 247. Pusat Dialisis Mutiara (Ayer Tawar)                     | 268. Sg Siput Hospital                                 |
| 248. Pusat Dialisis Penawar Permai                           | 269. SJ Dialysis Centre (Bidor)                        |
| 249. Pusat Dialisis Setia (Ipoh)                             | 270. SJ Dialysis Centre (Ipoh)                         |
| 250. Pusat Dialisis Taiping                                  | 271. SJAM_KPS Pusat Hemodialisis Centre 15 (Ipoh)      |
| 251. Pusat Dialisis Taiping (Kamunting)                      | 272. Slim River Hospital (Tanjong Malim)               |
| 252. Pusat Dialisis Taiping (Kuala Kangsar)                  | 273. Taiping Hospital                                  |
| 253. Pusat Dialisis Taiping (Parit Buntar)                   | 274. Tapah Hospital                                    |
| 254. Pusat Dialisis Setia                                    | 275. Teluk Intan Hospital                              |
| 255. Pusat Hemodialisis Darul Iltizam (Ipoh)                 | 276. Woh Peng Cheang Seah                              |
| 256. Pusat Hemodialisis Felda                                | 277. Yayasan Akhlak-NKF Taiping                        |
| 257. Pusat Hemodialisis Kampar Yayasan Nanyang-SJAM          | 278. Yayasan Dialysis Pendidikan Akhlak Perak-NKF Ipoh |
| 258. Pusat Hemodialisis Manjung                              |  |

### Perlis Indera Kayangan

- |   |                              |
|---|------------------------------|
| 279. Caring Dialysis (Kangar)             | 281. Tuanku Fauziah Hospital |
| 280. Pusat Dialysis Tuanku Syed Putra_NKF |                              |

### Penang

- |   |   |
|---|---|
| 282. Alkom Bakti Dialysis                           | 300. Loh Guan Lye Specialist Centre               |
| 283. AMD Rotary (Penang)                            | 301. MAA-Medicare Charity (Butterworth)           |
| 284. Asia Renal Care (Penang) BM                    | 302. Muhibah Renal Care                           |
| 285. Balik Pulau Hospital                           | 303. NEPH Sdn Bhd                                 |
| 286. BBA (Butterworth) Dialysis Centre              | 304. Nucare Dialysis Centre                       |
| 287. Buddhist Tzu Chi Dialysis Centre (Butterworth) | 305. Pantai Hospital Penang                       |
| 288. Buddhist Tzu Chi HD Centre (Penang)            | 306. Penang Adventist Hospital                    |
| 289. Bukit Mertajam Hospital                        | 307. Penang Caring Dialysis Society               |
| 290. Fo Yi NKF Dialysis Centre (1)                  | 308. Persatuan Kebajikan Haemodialysis St Anne BM |
| 291. Fo Yi NKF Dialysis Centre (2)                  | 309. Pertubuhan Dialisis Rotary-Satu Hati         |
| 292. Gleneagles Medical Centre                      | 310. Pertubuhan Hemodialisis SPS                  |
| 293. Happy Kid Nees Dialysis Centre                 | 311. Province Wellesley Renal Medifund            |
| 294. Island Hospital                                | 312. Pulau Pinang Hospital                        |
| 295. K K Tan Specialist (BM)                        | 313. Pulau Pinang Hospital (Home)                 |
| 296. Kepala Batas Hospital                          | 314. Pulau Pinang Hospital (Paed)                 |
| 297. KPJ Penang Specialist Hospital                 | 315. Pusat Dialisis BMC                           |
| 298. Lam Wah Ee Hospital                            | 316. Pusat Dialisis Ehsan Perak (Pedar)           |
| 299. Lim Boon Sho Dialysis Centre                   | 317. Pusat Dialisis SJ (Sg Bakap)                 |

## PARTICIPATING HAEMODIALYSIS CENTRES 2011

### Penang (cont)

- |  |  |
|--|--|
| 318. Pusat Haemodialisis Zakat (Jawi)          | 328. Pusat Rawatan Dialisis Lions-NKF (Penang) |
| 319. Pusat Haemodialisis Zakat Tasek Gelugor   | 329. PWRM (BM) Dialysis Centre                 |
| 320. Pusat Hemodialisis Bayan Baru             | 330. Renal Link (Penang)                       |
| 321. Pusat Hemodialisis Sinona                 | 331. Seberang Jaya Hospital                    |
| 322. Pusat Hemodialisis Zakat (Balik Pulau)    | 332. Seberang Perai (Bagan)                    |
| 323. Pusat Hemodialisis Zakat (Bukit Mertajam) | 333. SJ Dialysis Centre (Seberang Jaya)        |
| 324. Pusat Hemodialisis Zakat (Butterworth)    | 334. Sungai Bakap Hospital                     |
| 325. Pusat Hemodialisis Zakat (Kepala Batas)   | 335. The Penang Community HD Society           |
| 326. Pusat Hemodialisis Zakat (P. Pinang)      | 336. TSC Renal Care                            |
| 327. Pusat Hemodialisis Bestari                |  |

### Sabah

- |   |  |
|---|--|
| 337. BBA (Kota Kinabalu) Dialysis Centre  | 352. MAA-Medicare Charity (Kota Kinabalu)  |
| 338. BBA (Tawau) Dialysis Centre          | 353. Nobel Dialysis Centre                 |
| 339. Beaufort Hospital                    | 354. Papar Hospital                        |
| 340. Beluran Hospital                     | 355. Persatuan Buah Pinggang Sabah         |
| 341. Caring Dialysis Centre (Sandakan)    | 356. Persatuan Hemodialisis Kinabalu Sabah |
| 342. Caring Dialysis Centre Kota Kinabalu | 357. Pusat Rawatan Dialisis NKF-MUIS       |
| 343. Duchess of Kent Hospital             | 358. Queen Elizabeth Hospital              |
| 344. Keningau Hospital                    | 359. Ranau Hospital                        |
| 345. Kota Belud Hospital                  | 360. Sabah Medical Centre                  |
| 346. Kota Kinabatangan Hospital           | 361. Sandakan Kidney Society               |
| 347. Kota Marudu Hospital                 | 362. Semporna Hospital                     |
| 348. Kudat Hospital                       | 363. Sipitang Hospital                     |
| 349. Labuan Hospital                      | 364. Tambunan Hospital                     |
| 350. Lahad Datu Hospital                  | 365. Tawau Hospital                        |
| 351. Likas Hospital                       | 366. Tenom Hospital                        |

### Sarawak

- |   |  |
|---|--|
| 367. 801 Rumah Sakit Angkatan Tentera (Kuching) | 385. Pusat Dialisis Cahaya                           |
| 368. Bau Hospital                               | 386. Pusat Dialisis Waqaf An-Nur (Sarawak)           |
| 369. Betong Hospital                            | 387. Rejang Medical Centre                           |
| 370. Bintulu Hospital                           | 388. Renal Life Dialysis Centre                      |
| 371. CHKMUS-MAA Medicare Charity                | 389. Renal Therapy Services                          |
| 372. Hospital Daerah Daro                       | 390. Saratok Hospital                                |
| 373. Kanowit Hospital                           | 391. Sarawak General Hospital                        |
| 374. Kapit Hospital                             | 392. Sarikei Hospital                                |
| 375. KAS-Rotary-NKF                             | 393. Serian Hospital                                 |
| 376. Kuching Specialist Hospital                | 394. Sibu Hospital                                   |
| 377. Lawas Hospital                             | 395. Sibu Kidney Foundation                          |
| 378. Limbang Hospital                           | 396. Simunjan Hospital                               |
| 379. Lundu Hospital                             | 397. SJAM_KPS Pusat Hemodialisis Centre 10 (Bintulu) |
| 380. Marudi Hospital                            | 398. SJAM-KPS Haemodialysis Centre 8 (Sibu)          |
| 381. Miri Hospital                              | 399. Sri Aman Hospital                               |
| 382. Miri Red Crescent Dialysis Centre          | 400. Timberland Medical Centre                       |
| 383. Mukah Hospital                             |  |
| 384. Normah Medical Specialist Centre           |  |

## PARTICIPATING HAEMODIALYSIS CENTRES 2011

### Selangor Darul Ehsan

- |   |  |
|---|--|
| 401. 819 Rumah Sakit Angkatan Tentera               | 451. Pusat Dialisis Putra Jaya (Kajang)                    |
| 402. Ampang Hospital                                | 452. Pusat Dialisis Rakyat Ampang                          |
| 403. Apex Club of Klang-NKF Charity Dialysis Centre | 453. Pusat Dialisis Rakyat Sementa                         |
| 404. Assunta Hospital                               | 454. Pusat Dialisis Sijangkang                             |
| 405. Bakti-NKF Dialysis Centre                      | 455. Pusat Dialisis Touch                                  |
| 406. Bangi Dialysis Centre                          | 456. Pusat Dialysis Mesra (Kapar)                          |
| 407. Banting Hospital                               | 457. Pusat Dialysis Mesra (Rahman Putra)                   |
| 408. BBA (Puchong) Dialysis Centre                  | 458. Pusat Dialysis Mesra (Shah Alam)                      |
| 409. Caring Dialysis Centre (Cheras)                | 459. Pusat Dialysis Mesra KKB                              |
| 410. Caring Dialysis Centre (Sabak Bernam)          | 460. Pusat Haemodialysis Nilam (Seri Kembangan)            |
| 411. Caring Dialysis Centre (Sg. Besar)             | 461. Pusat Hemodialisis Fasa (Kg Medan)                    |
| 412. Caring Dialysis Centre (Tanjong Karang)        | 462. Pusat Hemodialisis Fasa (Sri Manja)                   |
| 413. Caring Dialysis Centre Andalas (Klang)         | 463. Pusat Hemodialisis Kau Ong Yah Ampang                 |
| 414. Damansara Specialist Hospital                  | 464. Pusat Hemodialisis Mawar N. Sembilan (Sepang)         |
| 415. DEMC Dialysis Centre                           | 465. Pusat Hemodialisis Mawar N. Sembilan (Seri Kembangan) |
| 416. EAM Dialysis Centre                            | 466. Pusat Hemodialisis Nilam (Semenyih)                   |
| 417. Haemodialysis Association Klang                | 467. Pusat Hemodialisis Permata                            |
| 418. Harmoni Dialysis (Damansara)                   | 468. Pusat Hemodialisis Shah Alam                          |
| 419. Harmoni Dialysis (Sg Long)                     | 469. Pusat Hemodialisis Yayasan Veteran ATM (Batu Caves)   |
| 420. Healthcare Dialysis Centre                     | 470. Pusat Perubatan Dialisis                              |
| 421. Hemodialisis Yayasan Veteran ATM (S Kembangan) | 471. Pusat Perubatan Dialisis Dengkil                      |
| 422. Ibnu Al-Nafis Dialysis Centre                  | 472. Pusat Perubatan Premier HUKM                          |
| 423. Jerteh Dialysis Centre                         | 473. Pusat Rawatan Dialisis Hidayah                        |
| 424. Kajang Hospital                                | 474. Pusat Rawatan Dialisis Hidayah (Sepang)               |
| 425. Kelana Jaya Medical Centre                     | 475. Pusat Rawatan Dialisis Islah (Batu Caves)             |
| 426. KPJ Ampang Puteri Specialist Hospital          | 476. Pusat Rawatan Dialisis Islah (Selayang)               |
| 427. KPJ Kajang Specialist Hospital                 | 477. Pusat Rawatan Dialisis Mukmin                         |
| 428. KPJ Selangor Specialist Hospital               | 478. Pusat Rawatan Dialisis Nefro Utama (Puchong)          |
| 429. Kuala Kubu Bharu Hospital                      | 479. Pusat Rawatan Dialysis Nefro Utama (Kajang Prima)     |
| 430. MAA-Medicare Charity (Kajang)                  | 480. Pusat Rawatan Hemodialisis Felina                     |
| 431. MB Star Rawatan Dialisis (Kelana Jaya)         | 481. Putrajaya Hospital                                    |
| 432. Nefrol I-Care                                  | 482. Rawatan Dialysis Bukit Tinggi                         |
| 433. Persatuan Dialisis Kurnia PJ                   | 483. Renal Associates                                      |
| 434. Pertubuhan Hemodialisis Pasar Besar Meru       | 484. Renal Care Dialysis Services                          |
| 435. Ping Rong-NKF                                  | 485. S.P. Menon Dialysis Centre (Klang)                    |
| 436. PJCC Dialysis Centre                           | 486. S.P. Menon Dialysis Centre (Petaling Jaya)            |
| 437. PNSB Dialisis Centre                           | 487. Sayang Dialysis Selayang                              |
| 438. Pusat Dialisis Aiman (Shah Alam)               | 488. Selayang Hospital                                     |
| 439. Pusat Dialisis An'nur                          | 489. Selayang Hospital (Paed)                              |
| 440. Pusat Dialisis An'nur Seksyen 13               | 490. Serdang Hospital                                      |
| 441. Pusat Dialisis LZS (Kapar)                     | 491. Sime Darby Medical Centre Subang Jaya                 |
| 442. Pusat Dialisis LZS (Sg. Besar)                 | 492. SJAM-KPS Haemodialysis Centre 1 (Raja Muda Musa)      |
| 443. Pusat Dialisis LZS (Shah Alam)                 | 493. SJAM-KPS Haemodialysis Centre 11 (Shah Alam)          |
| 444. Pusat Dialisis MAIS                            | 494. SJAM-KPS Haemodialysis Centre 12 (Balakong)           |
| 445. Pusat Dialisis MAIS Taman Melawati             | 495. SJAM-KPS Haemodialysis Centre 2 (Klang)               |
| 446. Pusat Dialisis Mesra (Kuala Selangor)          | 496. SJAM-KPS Haemodialysis Centre 3 (Banting)             |
| 447. Pusat Dialisis Mukmin Sungai Buloh             | 497. SJAM-KPS Haemodialysis Centre 5 (Rawang)              |
| 448. Pusat Dialisis NKF - Dato' Dr GA Sreenevasan   | 498. SJAM-KPS Haemodialysis Centre 6 (Kuala Selangor)      |
| 449. Pusat Dialisis NKF-Rotary Damansara            | 499. SJAM-KPS Pusat Hemodialisis Tasik Puteri              |
| 450. Pusat Dialisis Pakar Medi-Nefron (Lestari)     | 500. SJAM-KPS Pusat Hemodialysis Serdang (Station 14)      |

## PARTICIPATING HAEMODIALYSIS CENTRES 2011

### Selangor Darul Ehsan (cont)

- |  |   |
|--|---|
| 501. Smartcare Dialysis Centre (Subang Jaya) | 509. Bangi Dialysis Centre                |
| 502. Sri Kota Medical Centre                 | 510. Banting Hospital                     |
| 503. Sungai Buloh Hospital                   | 511. BBA (Puchong) Dialysis Centre        |
| 504. Sunway Medical Centre                   | 512. Caring Dialysis Centre (Cheras)      |
| 505. Sunway Medical Centre (2)               | 513. Tulips Dialysis Centre               |
| 506. Bangi Dialysis Centre                   | 514. Universiti Kebangsaan Malaysia Bangi |
| 507. Banting Hospital                        | 515. Yayasan Kebajikan SSL                |
| 508. BBA (Puchong) Dialysis Centre           | 516. Yayasan Kebajikan SSL Puchong        |

### Terengganu Darul Iman

- |                                    |  |
|------------------------------------|--|
| 517. Besut Hospital                | 524. Pusat Hemodialisis Nabilah                      |
| 518. Dungun Hospital               | 525. Pusat Pakar Dialisis Traktif (Besut)            |
| 519. Hulu Terengganu Hospital      | 526. Pusat Rawatan Dialisis Islah (Kuala Terengganu) |
| 520. Kemaman Hospital              | 527. Setiu Hospital                                  |
| 521. Pusat Dialisis MAIDAM         | 528. Sultanah Nur Zahirah Hospital                   |
| 522. Pusat Dialisis Nuraeen        | 529. YKN Dialisis (Terengganu)                       |
| 523. Pusat Dialisis Terengganu/NKF |  |

### Wilayah Persekutuan Kuala Lumpur

- |   |   |
|---|---|
| 530. Aiman Dialysis Centre                              | 557. Pusat Hemodialisis Harmoni (Shamelin)              |
| 531. Al-Islam Specialist Hospital                       | 558. Pusat Hemodialisis MAIWP-PICOMS                    |
| 532. Caring Dialysis (Wangsa Maju)                      | 559. Pusat Hemodialisis Mawar N. Sembilan (Seputih)     |
| 533. Charis-NKF Dialysis Centre                         | 560. Pusat Hemodialisis PMKL                            |
| 534. Cheras Dialysis Centre                             | 561. Pusat Hemodialisis PUSRAWI                         |
| 535. Hospital Angkatan Tentera Tuanku Mizan             | 562. Pusat Hemodialisis Waz Lian                        |
| 536. Kuala Lumpur Hospital (Home)                       | 563. Pusat Hemodialisis Yayasan Felda                   |
| 537. Kuala Lumpur Hospital (Paed.)                      | 564. Pusat Hemodialisis Medipro Alliance                |
| 538. Kuala Lumpur Hospital (Unit 1)                     | 565. Pusat Pakar Dialysis Traktif                       |
| 539. Kuala Lumpur Hospital (Unit 3)                     | 566. Pusat Pakar Tawakal                                |
| 540. Kuala Lumpur Hospital (Unit 4)                     | 567. Pusat Perubatan Universiti Kebangsaan Malaysia     |
| 541. Kuala Lumpur Lions Renal Centre                    | 568. Pusat Rawatan Dialisis Fungates Superflow-NKF      |
| 542. MAA-Medicare Charity (Cheras)                      | 569. Pusat Rawatan Dialisis Good Health-NKF (Kg Pandan) |
| 543. MAA-Medicare Charity (Kuala Lumpur)                | 570. Pusat Rawatan Dialisis Islah (KL)                  |
| 544. National Kidney Foundation Dialysis Centre (KL)    | 571. Pusat Rawatan Dialisis Nefro Utama (Setapak)       |
| 545. Pantai ARC Dialysis Services                       | 572. Renal Dialysis Centre                              |
| 546. Pantai Hospital Ampang                             | 573. S.P. Menon Dialysis Centre (Kuala Lumpur)          |
| 547. Poliklinik Komuniti Tanglin                        | 574. Sentosa Medical Centre                             |
| 548. Prince Court Medical Centre                        | 575. Smartcare Dialysis Clinic (Cheras)                 |
| 549. Pusat Dialisis Amal MAA-Medicare (Sg Besi)         | 576. The Kidney Dialysis Centre (1)                     |
| 550. Pusat Dialisis Bandar Sri Permaisuri               | 577. The Kidney Dialysis Centre (2)                     |
| 551. Pusat Dialisis Nefro Utama (Bangsar)               | 578. The Nayang-NKF Dialysis Centre                     |
| 552. Pusat Dialisis Pusat Pungutan Zakat (Kuala Lumpur) | 579. Tung Shin Hospital                                 |
| 553. Pusat Dialisis Veteran ATM (Seri Rampai)           | 580. Tung Shin Hospital & Yayasan Nanyang Press         |
| 554. Pusat Hemodialisis Dato' Lee Kok Chee              | 581. University Malaya Medical Centre                   |
| 555. Pusat Hemodialisis Desa Aman Puri                  | 582. University Malaya Specialist Centre                |
| 556. Pusat Hemodialisis Harmoni (Cheras)                | 583. YKN Dialisis (Kuala Lumpur)                        |

## PARTICIPATING PD CENTRES 2011

### **Johor Darul Takzim**

1. BP Renal Care (Batu Pahat)
2. BP Renal Care (Segamat)
3. Hospital Pakar Sultanah Fatimah (Muar)
4. Puteri Specialist Hospital,
5. Sultan Ismail Hospital (Paed)
6. Sultanah Aminah Hospital

### **Kedah Darul Aman**

7. Sultanah Bahiyah Hospital

### **Kelantan Darul Naim**

8. Raja Perempuan Zainab II Hospital
9. Universiti Sains Malaysia Hospital

### **Negeri Melaka**

10. Melaka Hospital

### **Negeri Sembilan Darul Khusus**

11. Tuanku Ja'afar Hospital (Paed)
12. Tuanku Ja'afar Hospital

### **Pahang Darul Makmur**

13. Tengku Ampuan Afzan Hospital (Paed)
14. Tengku Ampuan Afzan Hospital

### **Perak Darul Ridzuan**

15. Raja Permaisuri Bainun Hospital
16. Renal Care (Ipoh Specialist)

### **Penang**

17. Pulau Pinang Hospital (Paed)
18. Pulau Pinang Hospital

### **Sabah**

19. Duchess of Kent Hospital
20. Likas Hospital (Paed)
21. Queen Elizabeth Hospital

### **Sarawak**

22. Normah Medical Specialist Centre
23. Sarawak General Hospital

### **Selangor Darul Ehsan**

24. Selayang Hospital (Paed)
25. Selayang Hospital
26. Serdang Hospital
27. Sri Kota Medical Centre
28. Tengku Ampuan Rahimah Hospital

### **Terengganu Darul Iman**

29. Sultanah Nur Zahirah Hospital

### **Wilayah Persekutuan Kuala Lumpur**

30. Kuala Lumpur Hospital (Paed.), CAPD Unit
31. Kuala Lumpur Hospital, CAPD Unit
32. Prince Court Medical Centre, CAPD Unit
33. Pusat Perubatan Universiti Kebangsaan Malaysia, CAPD Unit
34. Renal Dialysis Centre, CAPD Unit
35. University Malaya Medical Centre, CAPD Unit

## PARTICIPATING TRANSPLANT FOLLOW-UP CENTRES 2011

### **Johor Darul Takzim**

1. Batu Pahat Hospital
2. Kluang Hospital
3. Mersing Hospital
4. Pakar Sultanah Fatimah Muar Hospital
5. Pontian Hospital
6. Segamat Hospital
7. Sultan Ismail Hospital (Paed)
8. Sultan Ismail Pandan Hospital
9. Sultanah Aminah Hospital

### **Kedah Darul Aman**

10. Sultanah Bahiyah Hospital

### **Kelantan Darul Naim**

11. Raja Perempuan Zainab II Hospital
12. Universiti Sains Malaysia Hospital

### **Negeri Melaka**

13. Melaka Hospital

### **Negeri Sembilan Darul Khusus**

14. Tuanku Ja'afar Hospital

### **Pahang Darul Makmur**

15. Tengku Ampuan Afzan Hospital

### **Perak Darul Ridzuan**

16. Raja Permaisuri Bainun Hospital
17. Renal Care (Ipoh Specialist)
18. Taiping Hospital

### **Penang**

19. Pulau Pinang Hospital

### **Sabah**

20. Duchess of Kent Hospital
21. Klinik Dr Choo & Liew
22. Labuan Hospital
23. Queen Elizabeth Hospital
24. Sabah Medical Centre
25. Tawau Hospital

### **Sarawak**

26. Bintulu Hospital
27. Miri Hospital
28. Sarawak General Hospital
29. Sibuan Hospital
30. Timberland Medical Centre

### **Selangor Darul Ehsan**

31. Assunta Hospital
32. KPJ Ampang Puteri Specialist Hospital
33. Selayang Hospital
34. Serdang Hospital
35. Smartcare Dialysis Centre, Subang Jaya
36. Tan Medical Renal Clinic
37. Tg. Ampuan Rahimah Hospital

### **Terengganu Darul Iman**

38. Kemaman Hospital
39. Sultanah Nur Zahirah Hospital

### **Wilayah Persekutuan Kuala Lumpur**

40. Fan Medical Renal Clinic
41. Kuala Lumpur Hospital (Paed)
42. Kuala Lumpur Hospital
43. Prince Court Medical Centre
44. Pusat Perubatan Universiti Kebangsaan Malaysia
45. University Malaya Medical Centre



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| 4       | QoL and Rehabilitation Outcomes on Dialysis Patient in Malaysia | Liu Wen Jiun<br>Chew Thian Fook<br>Christopher Lim Thiam Seong<br>Zaki Morad B Mohd Zaher                                    | Sultanah Aminah Hospital<br>Seremban Specialist Hospital<br>University Putra Malaysia<br>KPJ Kajang Specialist Hospital   |
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|  | Lily Mushahar                   | Tuanku Ja'afar Hospital               |
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|  | Rohan Malek Bin Dato' Dr. Johan | Selayang Hospital                     |
|  | Rosnawati Yahya                 | Kuala Lumpur Hospital                 |
|  | S. Prasad Menon                 | Sime Darby Medical Centre Subang Jaya |
|  | Tan Si Yen                      | Prince Court Medical Centre           |
|  | Wong Hin Seng                   | Selayang Hospital                     |

## FOREWORD

The last twelve months saw further increase in new dialysis centres across the nation to accommodate new patients with chronic kidney disease (CKD) needing renal replacement therapy. This increase is fuelled by a significant growth in the private haemodialysis sector helping to maintain an exceptionally high ratio of the usage of haemodialysis modality compared to peritoneal dialysis. Even though a positive growth in the number of local renal transplant from deceased donors is seen lately, the actual number remains seriously low and is unable to match the rising number of patients being listed in the national transplant waiting list.

Several initiatives taken at the national level to address some of the issues highlighted in past MDTR reports requiring attention will need further scrutiny to judge its effectiveness. The low ratio of trained dialysis nurses and medical assistants working in private and NGO HD units is being addressed by increasing the capacity of post basic renal nursing training and providing more places for such training for applicants from these two sectors. The need to lower the percentage of patients with renal anaemia without access to the therapeutically effective treatment with Erythropoiesis Stimulating Agents (ESA) had prompted the Ministry of Health to introduce ESA subsidy scheme for eligible patients in NGO units in late 2009. At the regulatory end, formal process of licencing and renewal of licencing of HD units is happening regularly receiving mixed response from the operators. Whether these developments actually led to progressive improvements in the quality of the services rendered will require close scrutiny and further evaluation.

While we are encouraged by the consistently high percentage of participation in the MDTR, the quality of the participation including the percentage of response in the fields surveyed in the annual return still has room for improvement. Several initiatives at the national level are being considered to improve the quality of the annual returns in addition to convincing the habitual non participators that it will be in their interest to do so eventually.

In addition to providing standard reports annually, we do encourage and welcome further research and clinical studies related to the data published in the annual report. Currently, a group of researchers from International Islamic University Malaysia and University Putra Malaysia are working together in collaboration with the registry and several data providers to focus on specific areas relevant to the rehabilitation and quality of life in dialysis patients. A study on depression, anxiety and stress in patients on maintenance Peritoneal and Hemodialysis (Evaluation of Psychological Profile and Quality of Life of Dialysis Patients in Malaysia) in this country will provide additional information beyond that which was provided in the annual report. NRR welcome an expression of interest from any relevant party to perform more quality initiatives aimed at improving the specific or overall outcome of patients on dialysis or post renal transplant in this country.

As usual, issues related to funding of this useful national initiative loom in the air causing trepidations that this registry will not out-last its usefulness. All efforts and contributions towards ensuring continued funding for this important national registry is highly appreciated and treasured.

My heartfelt thanks to everyone including SDPs, corporate sponsors, expert panel members, the Editors, MDTR advisory committee and NRR committee members, Ministry of Health Malaysia and lastly but not the least all the members of the management team led by Staff Nurse Lee Day Guat for all the contributions towards making this 19th MDTR report possible.

Datuk Dr Ghazali Ahmad  
Chairman  
NRR Advisory Committee  
2010-2012

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## EXECUTIVE SUMMARY

In 2011, there were 26159 patients receiving dialysis in Malaysia of whom 25688 were notified to the Malaysian Dialysis and Transplant Registry. Slightly more than 5000 new patients started dialysis in 2011. The equivalent incidence and prevalence rate of patients on dialysis were 181 and 900 per million population for Malaysia in 2011. The majority (92%) of these patients were on haemodialysis (HD) treatment, 8% were on peritoneal dialysis (PD). The increase in the dialysis population were mainly contributed by the rapid growth in private haemodialysis in the last 5 years. Patients more than 65 years old made up 27% of new dialysis patients. 56% of end stage kidney disease were reported to be caused by diabetes mellitus, a disease well proven to be highly preventable yet not prevented.

Although the public, NGO and private sector provided 31%, 27% and 42% of overall dialysis treatment in 2011, the government provided 59% of total funding for dialysis channelled through various funding and subsidy programmes. However, more than 90% of patients younger than 20 years of age were on government-funded dialysis programmes.

The annual death rate on dialysis in 2011 was 11.4%. The annual death rate for haemodialysis patients was 11.0% and chronic peritoneal dialysis patients 15.6%. Death due to cardiovascular disease appeared to be increasing in the last 7 years to 38% in 2011 probably due to the increasing number of elderly and diabetic patients undergoing dialysis. Death from infection (excluding peritonitis in PD) has increased over the last 7 years and has now become the second commonest cause of death. Despite attempts at adjusting for multiple variables contributing to death, there were wide variations in adjusted mortality rates between dialysis centres.

90% of dialysis patients receive Erythropoiesis Stimulating Agents (ESAs) yet the percentage of patients who received blood transfusions remained high at 14 to 18%. About 90% of patients were on calcium based phosphate binders. The use of newer and more expensive phosphate binders remained less than 3%.

Although intermediate outcomes in patients on dialysis have seen some improvement over the years, achievement of various targets in treatment of anaemia, mineral bone disease, blood pressure and dyslipidaemia and malnutrition still have some way to go. There were also demonstrable variations in the achievement of these various targets between dialysis centres. The contributing factors may be case mix, adequacy of funding for the different medications required, and adequacy of dialysis and medical care.

HD patients run the risk of Hepatitis infection due to nosocomial transmission. However, over the years, we have seen an encouraging decline in its prevalence with lower seroconversion rates. This is largely due to constant surveillance and strict implementation of infection control protocols within HD facilities around the country.

Despite the rapid increase in dialysis population, the number of kidney transplantation performed in Malaysia has remained very low. There were only 41 live related and 38 deceased donor kidney transplantation done in 2011. The transplantation rate has dropped to the lowest rate of 4 per million population compared to 6-7 per million in the previous 20 years. The patient survival rates were 95% and 88% at 1- year and 5-years respectively. Graft survival rate at 1-year was 93%, and at 5-years 83%

## ABBREVIATIONS

|          |   |
|----------|---|
| BMI      | Body Mass Index   |
| BP       | Blood pressure  |
| CAPD     | Continuous Ambulatory Peritoneal Dialysis                                       |
| CCPD/APD | Continuous cycling peritoneal dialysis/automated peritoneal dialysis            |
| CI       | Concentration Index   |
| CKD      | Chronic kidney disease  |
| CRA      | Clinical Registry Assistant   |
| CRA      | Clinical Registry assistant   |
| CRC      | Clinical Research Centre  |
| CRF      | Case report form  |
| CRM      | Clinical Registry Manager   |
| CVD      | Cardiovascular Disease  |
| DAPD     | Daytime Ambulatory Peritoneal Dialysis  |
| DM       | Diabetes Mellitus   |
| DOQI     | Dialysis Outcome Quality Initiative   |
| eMOSS    | Malaysian Organ Sharing System (Renal)  |
| ESAs     | Erythropoiesis Stimulating Agents   |
| ESRD     | End Stage Renal Disease   |
| GDP      | Gross domestic product  |
| GNI      | Gross National Income   |
| HD       | Haemodialysis   |
| HKL      | Kuala Lumpur Hospital   |
| ITT      | Intention to treat  |
| iPTH     | Intact parathyroid hormone  |
| JNC VI   | Joint National Committee on management of hypertension                          |
| Kt/V     | Number used to quantify Hemodialysis and peritoneal dialysis treatment adequacy |
| LQ       | Lower quartile  |
| MDTR     | Malaysian Dialysis and Transplant Registry                                      |
| MOH      | Ministry of Health, Malaysia  |
| MOSS     | Malaysian Organ Sharing System  |
| MRRB     | Malaysian Registry of Renal Biopsy  |
| MSN      | Malaysian Society of Nephrology   |
| NGO      | Non-governmental organization   |
| NRIC     | National Registration Identity Card   |
| NRR      | National Renal Registry, Malaysia   |
| PD       | Peritoneal dialysis   |
| PET D/P  | peritoneal transport status dialysate and plasma (D/P ratio)                    |
| pmarp    | per million age related population  |

## ABBREVIATIONS

|     |                              |
|-----|------------------------------|
| pmp | per million population       |
| QoL | Quality of Life              |
| ref | Reference                    |
| RCC | Registry coordinating centre |
| RRT | Renal replacement therapy    |
| SC  | Site coordinator             |
| SDP | Source data producer         |
| SMR | Standardised Mortality Ratio |
| UQ  | Upper quartile               |
| URR | Urea reduction rate          |