Since the year of 2000, cancer has been the first leading cause of death in Thailand. The effective strategies to prevent and control cancer in urgently needed.

The monograph “Cancer in Thailand Vol. III”, containing data on incidence and distribution of different cancers is essential for running the National Cancer Control programme in Thailand and predicting benefits to the people of the kingdom of Thailand.

Contributions are from research institutes, universities and hospitals in Bangkok, Chiang Mai, Lampang, Khon Kaen, and Songkhla in Thailand, as well as from The International Agency for Research on Cancer, Lyon, France. This project was supported by the Cancer Research Foundation of the National Cancer Institute.

(Seree Tuchinda, M.D.)
Director General, Department of Medical Services
Ministry of Public Health
The cancer picture for Thailand, here presented as Cancer in Thailand 1995-2000 volume III, is published later than desired and planned. The cancer registry of the National Cancer Institute has some difficulties of registration due to insufficient resources and late reporting from the cancer centers and hospitals. The cancer registry has received electronic files from all cancer centers in Thailand. Although these file contain some errors, they have provided sources of data resulting in identification a considerable number of previously unknown cancer cases from the preceding years. The cancer statistic has thus been corrected. The corrected numbers from 1995 to 2000 are now reliable.

I would like to thank all our collaborators for their help in providing data presented in this volume. I would like to express my gratitude to the devoted staffs of cancer registry in all cancer centers for the immense amount of work that has been done in preparation of the statistics and graphics for this volume.

I hope the data in this volume will be useful for those interested in cancer and cancer research as well for those who involve in the planning policies for combat cancer in Thailand.

(Thiravud Khuhaprema, M.D., F.I.C.S.)
Director, National Cancer Institute,
Bangkok, Thailand
This report has been made possible by the collaboration of numerous persons within the National Cancer Institute and within all Cancer Centers across Thailand. Thanks must first go to each of these centers, notifying hospitals and pathology laboratories for the regular and completeness of their contributions. I also wish to thank H. Sriplung, N. Martin, D. M. Parkin and International Agency for Research on Cancer (IARC) for their continued and valuable assistance.

The registry could not function effectively without the funding of the Cancer Foundation Fund for National Cancer Institute, and the support by the Ministry of Public Health. Their sustained support is gratefully acknowledged.

Finally, the registry staffs, consultants and volunteers are to be praised for their diligence and enthusiasm in the performance of their duties in processing the data upon which this volume is based on.

(Thiravud Khupapena, M.D., F.I.C.S)
Director, National Cancer Institute,
Bangkok, Thailand
CONTRIBUTORS TO THE MONOGRAPH

BANGKOK

National Cancer Institute of Thailand :
Sineenat Sontipong, M.Ed.
Nimit C. Martin, M.D.
Visoot Vootiprux, M.D.
Chol Kanchanabat, M.D.
Thiravud Khuhaprema, M.D.

Secretarial staff :
Watinun Petcharit
Prathum Phakobpun
Maneerat Tantrakul
Pikun Panjam
Preeya Rungroang
Aumpawanna Phaipim
Nawarat Karanunt

CHIANG MAI

Chiang Mai University :
Yupa Sumitsawan, M.D.
Songphol Srisukho, M.D.

Secretarial staff :
Ampai Sastraruji
Udomluk Chaisangkhaum
Puttachart Maneesai
Ubol Chompuphan
Varunee Khamsan

LAMPANG

Lampang Cancer Center :
Nimit C. Martin, M.D.
Suratat Pongnikorn, M.D.
Nilubol Patel, M.D.

Secretarial staff :
Karnchana Daoprasert
Orawan Priwan
Arada Pawong
Udomluck Yapanya
CONTRIBUTORS TO THE MONOGRAPH

KHON KAEN

Khon Kaen University:

Surapon Wiangnon, M.D.
Supanee Sraimporn, Ph.D.
Krittika Suwanrungraung, M.Sc.
Supot Kamsa-ard, M.P.H.

Secretarial staff:

Sujinant Horasit
Pakanant Usantia
Aim-orn Saopol
Prasitporn Muenhust

SONGKHLA

Prince of Songkla University:

Hutcha Sriplung, M.D.
Paramee Thongsuksai, M.D.
Temsak Phunggrassami, M.D.
Paradee Prechavittayakul, B.Sc.

Secretarial staff:

Wanlapa Wattanapongpithur
Benjaporn Chumseang
Rattana Suwanno
CHIANG MAI PROVINCE

1. Maharaj Hospital, Chiang Mai University
2. Mae Rim Hospital
3. Nakorn Ping Hospital
4. Chiang Mai Army Hospital
5. Chiang Mai Police Hospital
6. Chiang Mai Municipal Hospital
7. McCormick Hospital
8. Lanna Hospital
9. Chiang Mai Ram Hospital
10. Roum-Paeth Hospital
11. Seiumpukdee Hospital
12. Chinda Hospital
13. Maccane Hospital
14. All Community Hospitals in Chiang Mai Province
15. Public Health Centers
16. Provincial Chief Medical Officer’s Office

LAMPANG PROVINCE

17. Lampang Provincial Hospital
18. Lampang Cancer Center
19. All Community Hospitals in Lampang Province
20. Lampang Army Hospital
21. Kelang - Ram Hospital
22. Van San Wood Hospital
23. Maharaj Hospital, Chiang Mai University
24. All private Hospitals in Chiang Mai province

KHON KAEN PROVINCE

25. Srinagarind Hospital, Khon Kaen University
26. Khon Kaen Regional Hospital
27. Health Promotion Center Region 6
28. Sripatcharin Hospital
29. Mother and Child Hospital
30. Rajapreuk Hospital
31. Khon Kaen Ram Hospital
32. Mokul Hospital
33. Samart Hospital
34. Saint Paul Hospital
35. All Community Hospitals in Khon Kaen Province
36. Provincial Chief Medical Officer’s Office
### BANGKOK AND ITS VICINITY

<table>
<thead>
<tr>
<th>Number</th>
<th>Hospital Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.</td>
<td>National Cancer Institute</td>
</tr>
<tr>
<td>38.</td>
<td>Rajavithi Hospital</td>
</tr>
<tr>
<td>39.</td>
<td>Queen Sirikit National Institute of Child Health</td>
</tr>
<tr>
<td>40.</td>
<td>Leardsin Hospital</td>
</tr>
<tr>
<td>41.</td>
<td>Priest’s Hospital</td>
</tr>
<tr>
<td>42.</td>
<td>Nopparut Ratchatani Hospital</td>
</tr>
<tr>
<td>43.</td>
<td>Institute of Dermatology</td>
</tr>
<tr>
<td>44.</td>
<td>Prasat Neurological Institute</td>
</tr>
<tr>
<td>45.</td>
<td>Institute of Pathology</td>
</tr>
<tr>
<td>46.</td>
<td>Bamrasnaradura I.D. Hospital</td>
</tr>
<tr>
<td>47.</td>
<td>Phranungklo Hospital</td>
</tr>
<tr>
<td>48.</td>
<td>Mettapracharak Hospital</td>
</tr>
<tr>
<td>49.</td>
<td>Central Chest Hospital</td>
</tr>
<tr>
<td>50.</td>
<td>Cancer Institute, Siriraj Hospital</td>
</tr>
<tr>
<td>51.</td>
<td>Ramathibodi Hospital</td>
</tr>
<tr>
<td>52.</td>
<td>King Chulalongkorn Memorial Hospital</td>
</tr>
<tr>
<td>53.</td>
<td>Thammasat Chalermpriyakiat Hospital</td>
</tr>
<tr>
<td>54.</td>
<td>Hospital for Tropical Disease</td>
</tr>
<tr>
<td>55.</td>
<td>Phra Mongkutklao Hospital</td>
</tr>
<tr>
<td>56.</td>
<td>Somdej Prapinklao Hospital</td>
</tr>
<tr>
<td>57.</td>
<td>Bangkok Naval Hospital</td>
</tr>
<tr>
<td>58.</td>
<td>Bhumibol Adulyadej Hospital</td>
</tr>
<tr>
<td>59.</td>
<td>Police General Hospital</td>
</tr>
<tr>
<td>60.</td>
<td>Vajira Hospital</td>
</tr>
<tr>
<td>61.</td>
<td>Bangkok Metropolitan Administration General Hospital</td>
</tr>
<tr>
<td>62.</td>
<td>Taksin Hospital</td>
</tr>
<tr>
<td>63.</td>
<td>Charoenkrung Pracharaks Hospital</td>
</tr>
<tr>
<td>64.</td>
<td>Ladkrabang Hospital</td>
</tr>
<tr>
<td>65.</td>
<td>Veterans General Hospital</td>
</tr>
<tr>
<td>66.</td>
<td>Thailand Tobacco Monopoly Hospital</td>
</tr>
<tr>
<td>67.</td>
<td>Central General Hospital of Ministry of Intera</td>
</tr>
<tr>
<td>68.</td>
<td>Prison Hospital, Department of Correction</td>
</tr>
<tr>
<td>69.</td>
<td>Metropolitan Electricity Authority Hospital</td>
</tr>
<tr>
<td>70.</td>
<td>Burachat Chaiyakorn Hospital</td>
</tr>
<tr>
<td>71.</td>
<td>Yosae Hospital</td>
</tr>
<tr>
<td>72.</td>
<td>Yaowarak Hospital</td>
</tr>
<tr>
<td>73.</td>
<td>Royal Irrigation Hospital</td>
</tr>
<tr>
<td>74.</td>
<td>Registration Processing Center</td>
</tr>
<tr>
<td>75.</td>
<td>Division of Health Statistics Bureau of Health Policy and Plan Office</td>
</tr>
<tr>
<td>76.</td>
<td>Aekamarin General Hospital (Bangkae)</td>
</tr>
<tr>
<td>77.</td>
<td>Ananta Pattana Hospital</td>
</tr>
<tr>
<td>78.</td>
<td>B Care Medical Center</td>
</tr>
<tr>
<td>79.</td>
<td>Bangkok Adventist Hospital</td>
</tr>
<tr>
<td>80.</td>
<td>Bangkok Cancer Center Hospital</td>
</tr>
<tr>
<td>81.</td>
<td>Bangkok Chest Hospital</td>
</tr>
<tr>
<td>82.</td>
<td>Bangkok General Hospital</td>
</tr>
</tbody>
</table>
83. Bangkok Nursing Home Hospital
84. Bangmod I Hospital
85. Bangmod II Hospital
86. Bangmod III Hospital
87. Bangna I Hospital
88. Bangna II Hospital
89. Bangpai Hospital
90. Bangpakok I Hospital
91. Bangpakok II Hospital
92. Bangpakok III Hospital
93. Bangpo General Hospital
94. Bomrungrad Hospital
95. Camillian Hospital
96. Central General Hospital
97. Chao Phraya Hospital
98. Chung Jen Hospital
99. Deja General Hospital
100. Dr. Panya General Hospital
101. Hua Chiew General Hospital
102. Jetanin Hospital
103. Jonjint Foundation Hospital
104. Karuna Pitak Hospital
105. Kasemrad Hospital Bang Khae
106. Kasemrad Hospital Prachachuen
107. Klongtun Hospital
108. Kluaynamthai Hospital
109. Krungdhon I Hospital
110. Krungdhon II Hospital
111. Ladprao General Hospital
112. Mahachai II Hospital
113. Mahaesuk Hospital
114. Mayo Hospital
115. Mitraparp Wong Wian Yai
116. Mongkutwattana Hospital
117. Nakorn Thon Hospital
118. Navaminthra Hospital
119. Pakkred Vejchakarn General Hospital
120. Paolo Memorial Hospital
121. Paya Thai I Hospital
122. Paya Thai II Hospital
123. Paya Thai III Hospital
124. Petcharavej Hospital
125. Piyavate Hospital Public Company Limited
126. Praram 2 Hospital
127. Prommitr Hospital
128. Rajburana Hospital
129. Rama 9 Hospital
130. Ramasuksawat Hospital
131. Ramkhamhaeng Hospital
132. Rattarin Hospital
133. Saint Louis Hospital
134. Salaya Hospital
135. Samitivej Hospital
136. Samitivej Srinakarin Hospital
137. Samrong Hospital
138. Siam Hospital
139. Sikarin Hospital
140. Sin Phat Hospital
141. Srisiam Hospital
142. Srivichai I Hospital
143. Srivichai II Hospital
144. Srivichai III Hospital
145. St. Carlos Group of Health Services
146. Sukumvit Hospital
147. Thainakarin Hospital
148. The Bangkok Christian Hospital
149. Theptarin General Hospital
150. Thon Buri I Hospital
151. Thon Buri II Hospital
152. Thian Fah Foundation Hospital
153. Vejsawad Hospital
154. Vejthani Hospital
155. Vibhavadi - Ikeda Hospital
156. Vichaiyud Hospital
157. Vichanyud Hospital*
158. Vibhavadi General Hospital
159. Yanhee General Hospital
160. Bangkok Pathology - Laboratory
161. Surgical Pathology - Cytology Service

SONGKHLA PROVINCE

162. Songklanagarind Hospital
163. Songkhla Hospital
164. Hat Yai Hospital
165. Songklanagarind Dental Hospital
166. Raj Yindee Hospital
167. All Community Hospitals in Songkhla Province
168. Provincial Chief Medical Officer’s Office
169. Bangkok-Hat Yai Hospital
170. Sikharin Hospital
Foreword .......................................................................................................................................................................... A
Acknowledgement ............................................................................................................................................. C
Contributors to the Monograph ............................................................................................... D
Hospitals and Institutes ............................................................................................................................ F
Contents ............................................................................................................................................................................... J
List of Tables.............................................................................................................................................................. L
List of Figures ........................................................................................................................................................ M
Chapter I : Registry Procedure and Statistical Methods ................................... 1
Chapter II : Cancer Incidence in Thailand ......................................................... 7
   1. Cancer Incidence and Leading Sites ................................................................. 9
      \begin{itemize}
      \item Nimit Martin
      \item Nilubol Patel
      \end{itemize}
   2. Oral Cavity and Pharynx ....................................................................................... 19
      \begin{itemize}
      \item Hutcha Sriplung
      \end{itemize}
   3. Nasopharynx .............................................................................................................. 22
      \begin{itemize}
      \item Yupa Sumitsawan
      \item Songphol Srisukho
      \end{itemize}
   4. Oesophagus .................................................................................................................. 25
      \begin{itemize}
      \item Hutcha Sriplung
      \end{itemize}
   5. stomach ........................................................................................................................... 28
      \begin{itemize}
      \item Yupa Sumitsawan
      \item Songphol Srisukho
      \end{itemize}
   6. Colon and Rectum ......................................................................................................... 31
      \begin{itemize}
      \item Nimit Martin
      \item Surathat Pongnikorn
      \end{itemize}
   7. Liver ............................................................................................................................... 34
      \begin{itemize}
      \item Supanee Sriamporn
      \item Darunee Jintakanon
      \item Supot Kamsa-ard
      \end{itemize}
   8. Gallbladder and Extrahepatic Bile Duct .......................................................... 38
      \begin{itemize}
      \item Surathat Pongnikorn
      \item Nimit Martin
      \end{itemize}
   9. Larynx ........................................................................................................................... 41
      \begin{itemize}
      \item Yupa Sumitsawan
      \item Songphol Srisukho
      \end{itemize}
 10. Lung ............................................................................................................................... 44
      \begin{itemize}
      \item Nimit Martin
      \item Surathat Pongnikorn
      \end{itemize}
 11. Breast ............................................................................................................................ 47
      \begin{itemize}
      \item Nimit Martin
      \item Arkom Cheirsilpa
      \end{itemize}
 12. Cervix Uteri .................................................................................................................. 49
      \begin{itemize}
      \item Prasit Pengsaa
      \item Sangduan Jindawijak
      \end{itemize}
Table 2.1.1  Land area and estimated population in 1996 ........... 9
Table 2.1.2  Age-standardized incidence rates (ASR), all sites, 1995-1997 ................................................................. 9
Table 2.1.3  Estimated cancer incidence in Thailand ............. 10
Table 2.1.4  Thailand (estimate) 1996 ................................... 12
Table 2.3.1  Percentage of histologically verified and death certificate only cases, nasopharynx cancer ........... 23
Table 2.5.1  Percentage of histologically verified and death certificate only cases, stomach cancer .................. 29
Table 2.6.1  Percentage of histologically verified and death certificate only cases, colorectum cancer .................. 32
Table 2.8.1  Percentage of histologically verified and death certificate only cases, gallbladder and extra hepatic bile duct cancers .................................................. 39
Table 2.9.1  Percentage of histologically verified and death certificate only cases, larynx cancer ......................... 42
Table 2.10.1 Percentage of histologically verified and death certificate only cases, lung cancer ......................... 45
Table 3.1  Contributing registries ........................................... 73
Table 3.2  Sites and population ............................................... 73
Table 3.3  Incidence of cancer in childhood, both sexes, Thailand (1995-1997) ........................................................... 75
Table 3.4  Incidence of cancer in childhood, male and female, Thailand (1995-1997) .......................................................... 76
Figure 2.1.1  Thailand: regions and areas covered by the cancer registries ............................................ 10
Figure 2.1.2  Age-standardized incidence rates in different regions ........................................................................ 11
Figure 2.1.3  Leading cancers in Thailand (estimated), 1996 ................................................................. 12
Figure 2.1.4  Leading cancers in Chiang Mai, 1995-1997 ................................................................. 14
Figure 2.1.5  Leading cancers in Lampang, 1995-1997 ................................................................... 15
Figure 2.1.6  Leading cancers in Khon Kaen, 1995-1997 ................................................................... 16
Figure 2.1.7  Leading cancers in Bangkok, 1995-1997 ................................................................... 17
Figure 2.1.8  Leading cancers in Songkhla, 1995-1997 ................................................................... 18
Figure 2.2.1  Oral cavity and pharynx cancers in different regions, 1995-1997 ........................................... 19
Figure 2.2.2  Age-specific incidence rates of oral cavity and pharynx cancer, 1995-1997 ......................... 20
Figure 2.2.3  Trend in incidence of oral cavity and pharynx cancers ................................................................ 21
Figure 2.3.1  Nasopharynx cancer in different regions, 1995-1997 ...................................................... 22
Figure 2.3.2  Age-specific incidence rates of nasopharynx cancer, 1995-1997 ................................................ 23
Figure 2.3.3  Trend in incidence of nasopharynx cancer ........................................................................ 24
Figure 2.4.1  Oesophagus cancer in different regions, 1995-1997 .............................................................. 25
Figure 2.4.2  Age-specific incidence rates of oesophagus cancer, 1995-1997 ................................................ 26
Figure 2.4.3  Trend in incidence of oesophagus cancer ........................................................................ 27
Figure 2.5.1  Stomach cancer in different regions, 1995-1997 ............................................................... 28
Figure 2.5.2  Age-specific incidence rates of stomach cancer, 1995-1997 .................................................... 29
Figure 2.5.3  Trend in incidence of stomach cancer ........................................................................ 30
Figure 2.6.1  Colorectum cancer in different regions, 1995-1997 ............................................................. 31
Figure 2.6.2  Age-specific incidence rates of colorectum cancer, 1995-1997 .................................................. 32
Figure 2.6.3  Trend in incidence of colorectum cancer ........................................................................ 33
Figure 2.7.1  Liver cancer in different regions, 1995-1997 ................................................................... 34
Figure 2.7.2  Age-specific incidence rates of liver cancer, 1995-1997 ......................................................... 35
Figure 2.7.3  Trend in incidence of liver cancer ........................................................................ 36
Figure 2.7.4  Histological type of liver cancer .......................... 37
Figure 2.8.1  Gallbladder and extra hepatic bile duct cancers in
different regions, 1995-1997 ...................................................... 38
Figure 2.8.2  Age-specific incidence rates of gallbladder and
extra hepatic bile duct cancers, 1995-1997 ............................. 39
Figure 2.8.3  Trend in incidence of gallbladder and
extra hepatic bile duct cancers ................................................... 40
Figure 2.9.1  Larynx cancer in different regions, 1995-1997 .... 41
Figure 2.9.2  Age-specific incidence rates of larynx cancer,
1995-1997 .................................................................................. 42
Figure 2.9.3  Trend in incidence of larynx cancer ................. 43
Figure 2.10.1 Lung cancer in different regions, 1995-1997 .... 44
Figure 2.10.2 Age-specific incidence rates of lung cancer,
1995-1997 .................................................................................. 45
Figure 2.10.3 Histological type of lung cancer ....................... 46
Figure 2.10.4 Trend in incidence of lung cancer .................... 46
Figure 2.11.1 Breast cancer in different regions, 1995-1997 ... 47
Figure 2.11.2 Age-specific incidence rates of breast cancer,
1995-1997 .................................................................................. 47
Figure 2.11.3 Trend in incidence of breast cancer ................ 48
Figure 2.12.1 Cervix uteri cancer in different regions,
1995-1997 .................................................................................. 49
Figure 2.12.2 Age-specific incidence rates of cervix uteri cancer,
1995-1997 .................................................................................. 49
Figure 2.12.3 Trend in incidence of cervix uteri cancer ......... 50
Figure 2.13.1 Ovarian cancer in different regions, 1995-1997 .. 51
Figure 2.13.2 Age-specific incidence rates of ovarian cancer,
1995-1997 .................................................................................. 51
Figure 2.13.3 Trend in incidence of ovarian cancer .............. 52
Figure 2.14.1 Penis cancer in different regions, 1995-1997 .... 53
Figure 2.14.2 Age-specific incidence rates of penis cancer,
1995-1997 .................................................................................. 53
Figure 2.14.3 Trend in incidence of penis cancer ................. 54
Figure 2.14.4 Prostate cancer in different regions, 1995-1997 .. 54
Figure 2.14.5 Age-specific incidence rates of prostate cancer,
1995-1997 .................................................................................. 55
Figure 2.14.6 Trend in incidence of prostate cancer ............. 55
Figure 2.15.1 Bladder cancer in different regions, 1995-1997 ... 56
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.15.2</td>
<td>Age-specific incidence rates of bladder cancer, 1995-1997</td>
</tr>
<tr>
<td>2.15.3</td>
<td>Trend in incidence of bladder cancer</td>
</tr>
<tr>
<td>2.16.1</td>
<td>Thyroid cancer in different regions, 1995-1997</td>
</tr>
<tr>
<td>2.16.2</td>
<td>Age-specific incidence rates of thyroid cancer, 1995-1997</td>
</tr>
<tr>
<td>2.16.3</td>
<td>Histological type of thyroid cancer</td>
</tr>
<tr>
<td>2.16.4</td>
<td>Trend in incidence of thyroid cancer</td>
</tr>
<tr>
<td>2.17.1</td>
<td>Non-Hodgkin lymphoma in different regions, 1995-1997</td>
</tr>
<tr>
<td>2.17.2</td>
<td>Age-specific incidence rates of non-Hodgkin lymphoma, 1995-1997</td>
</tr>
<tr>
<td>2.17.3</td>
<td>Trend in incidence of non-Hodgkin lymphoma</td>
</tr>
<tr>
<td>2.18.1</td>
<td>Leukaemia in different regions, 1995-1997</td>
</tr>
<tr>
<td>2.18.2</td>
<td>Age-specific incidence rates of leukaemia, 1995-1997</td>
</tr>
<tr>
<td>2.18.3</td>
<td>Histological type of leukaemia</td>
</tr>
<tr>
<td>2.18.4</td>
<td>Trend in incidence of leukaemia</td>
</tr>
<tr>
<td>3.1</td>
<td>Incidence rates for childhood cancers by ICCC group, age &lt; 15 both sexes, Thailand, 1995-1997</td>
</tr>
<tr>
<td>3.2</td>
<td>Number of cases of all childhood cancers by ICCC and age both sexes, Thailand, 1995-1997</td>
</tr>
<tr>
<td>3.3</td>
<td>Age-specific incidence rate per million of childhood cancer (selected sites) both sexes (1995-1997)</td>
</tr>
<tr>
<td>4.1</td>
<td>Projection of colon-rectum cancer cases, both sexes</td>
</tr>
<tr>
<td>4.2</td>
<td>Projection of liver cancer cases, both sexes</td>
</tr>
<tr>
<td>4.3</td>
<td>Projection of lung cancer cases, both sexes</td>
</tr>
<tr>
<td>4.4</td>
<td>Projection of cervix uteri cancer cases</td>
</tr>
<tr>
<td>4.5</td>
<td>Projection of female breast cancer cases</td>
</tr>
<tr>
<td>4.6</td>
<td>Projection of all cancers cases, both sexes</td>
</tr>
</tbody>
</table>