

Chapter 4

BASIS OF DIAGNOSIS

An important item of information that depicts quality of data is the basis of diagnosis. A microscopic confirmation of cancer is almost always required before initiation of cancer directed treatment.

The basis of diagnosis of cancers registered at the various HBCRs is shown in Table 4.1 and depicted as Pie (Π) diagrams in Figure 4.1. The proportion of microscopic confirmation was 90% in both sexes in all HBCRs, except in Chennai where it was 83.2% in males and 88.3% in females.

Table 4.2 and Figure 4.2 give further details of microscopically verified cancers by various types of microscopic diagnosis. Primary Histology was the predominant form of microscopic diagnosis in all registries in both sexes. The percentage of diagnoses based on cytology was highest in Bangalore with 28.1% in males and 15.8% in females respectively. Dibrugarh (14.5%) had a high proportion of cases based on cytology in males.

Table 4.1: Number (#) and Relative Proportion (%) of Cancers Based on Different Methods of Diagnosis

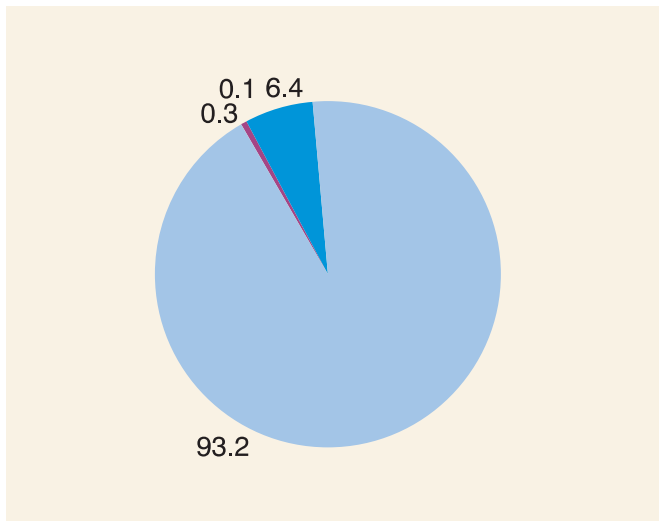
Registry	Microscopic		All imaging techniques		Clinical		Others		Total	
	#	%	#	%	#	%	#	%	#	%
Males										
Mumbai*	18074	93.2	61	0.3	18	0.1	1246	6.4	19399	100.0
Bangalore	9726	94.5	149	1.4	283	2.7	135	1.3	10293	100.0
Chennai	10421	83.2	1119	8.9	800	6.4	183	1.5	12523	100.0
Thi'puram	11583	92.2	693	5.5	209	1.7	78	0.6	12563	100.0
Dibrugarh	1691	94.9	63	3.5	8	0.4	20	1.1	1782	100.0
Females										
Mumbai*	14262	93.1	46	0.3	19	0.1	986	6.4	15313	100.0
Bangalore	11343	95.8	94	0.8	234	2.0	171	1.4	11842	100.0
Chennai	12001	88.3	567	4.2	926	6.8	95	0.7	13589	100.0
Thi'puram	10969	96.3	227	2.0	165	1.4	33	0.3	11394	100.0
Dibrugarh	949	89.3	73	6.9	11	1.0	30	2.8	1063	100.0

* Only 2004-05 data

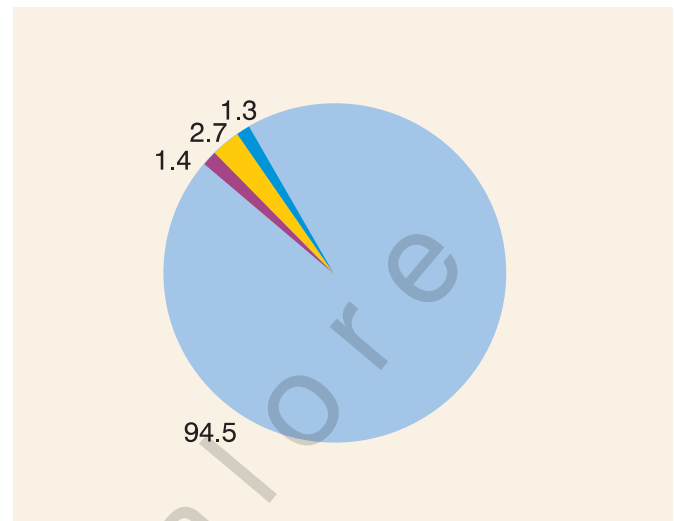
Fig. 4.1 (a): Pie Diagram showing Proportion (%) of Patients according to Method of Diagnosis (2004-2006)

Males

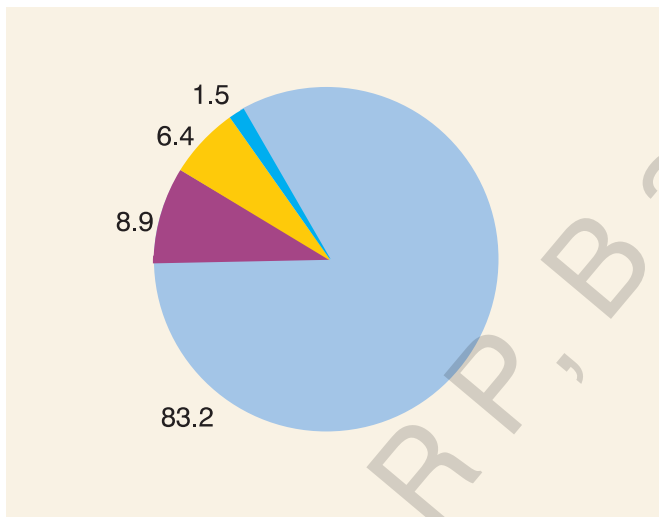
Mumbai



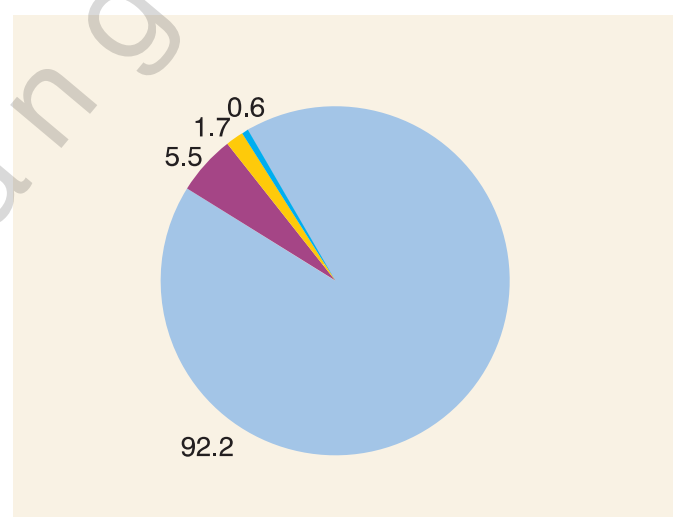
Bangalore



Chennai



Thiruvananthapuram



Dibrugarh

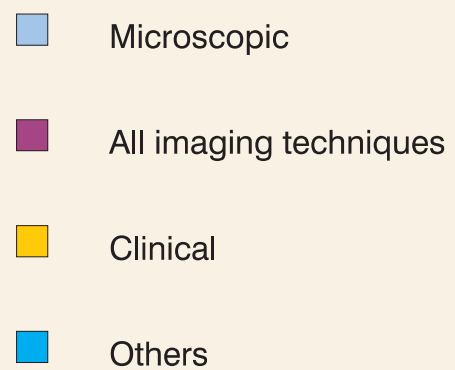
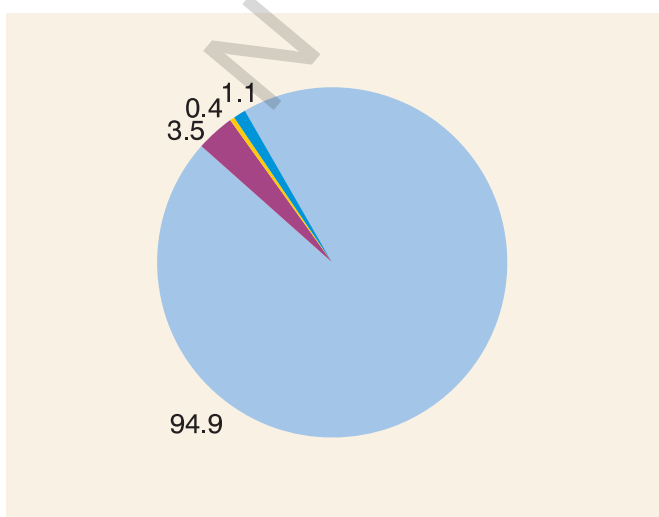
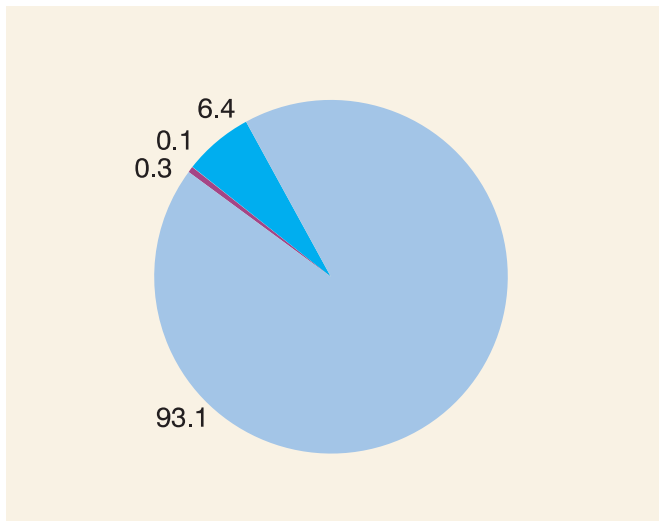


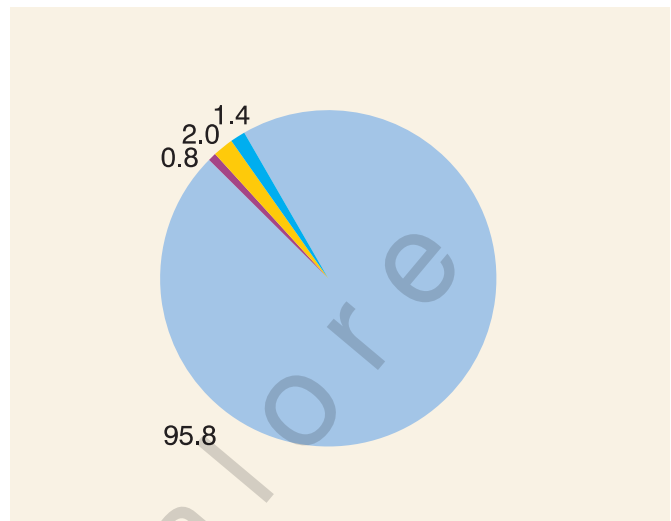
Fig. 4.1(b): Pie Diagram showing Proportion (%) of Patients according to Method of Diagnosis (2004-2006)

Females

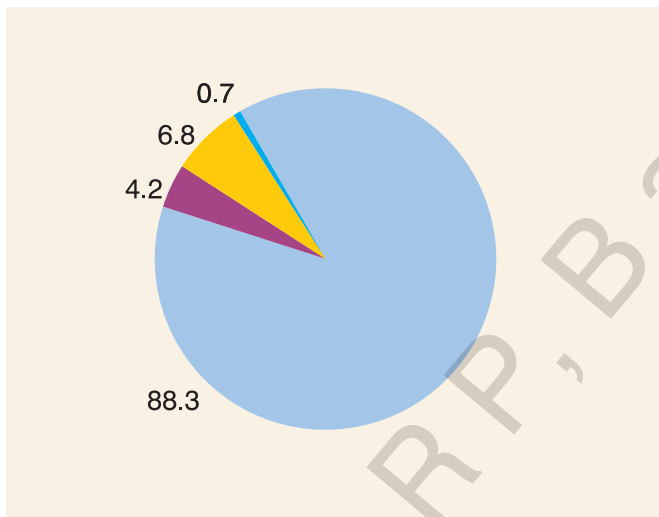
Mumbai



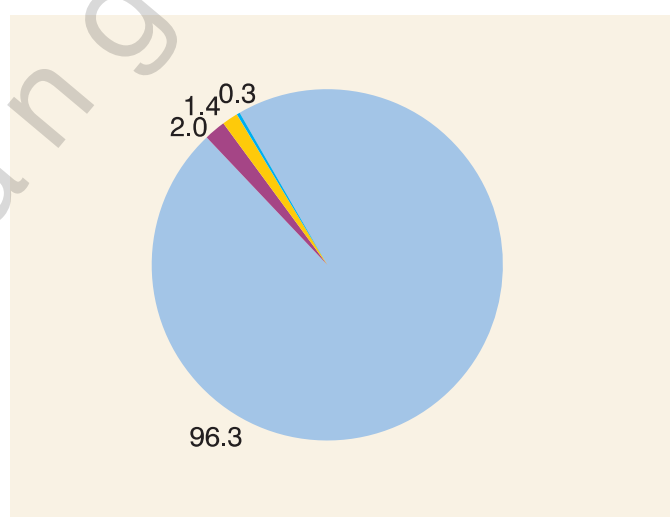
Bangalore



Chennai



Thiruvananthapuram



Dibrugarh

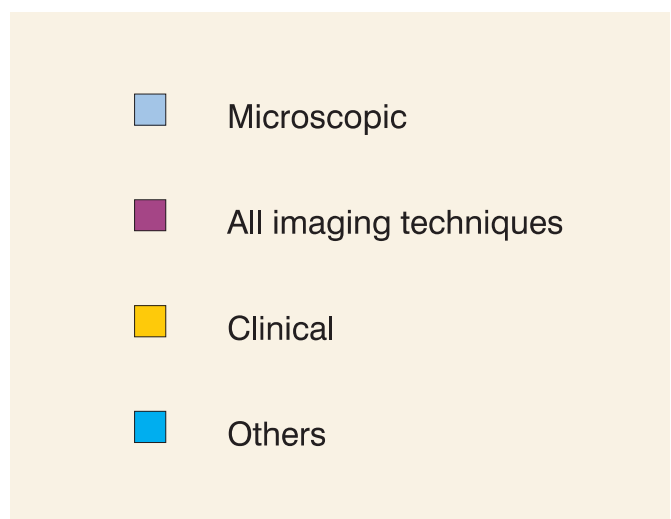
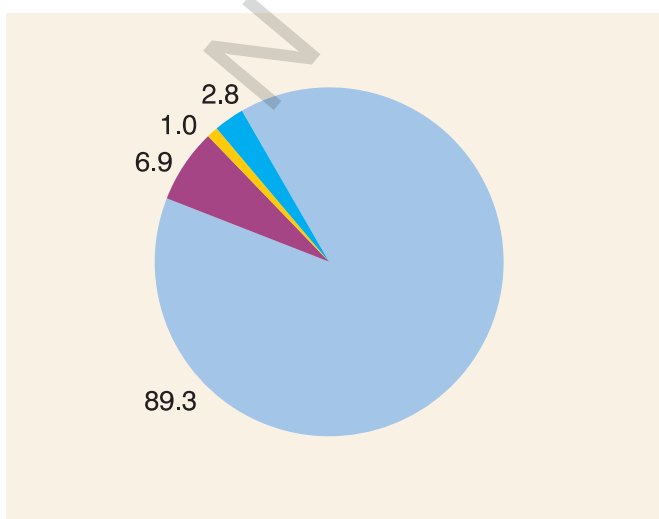
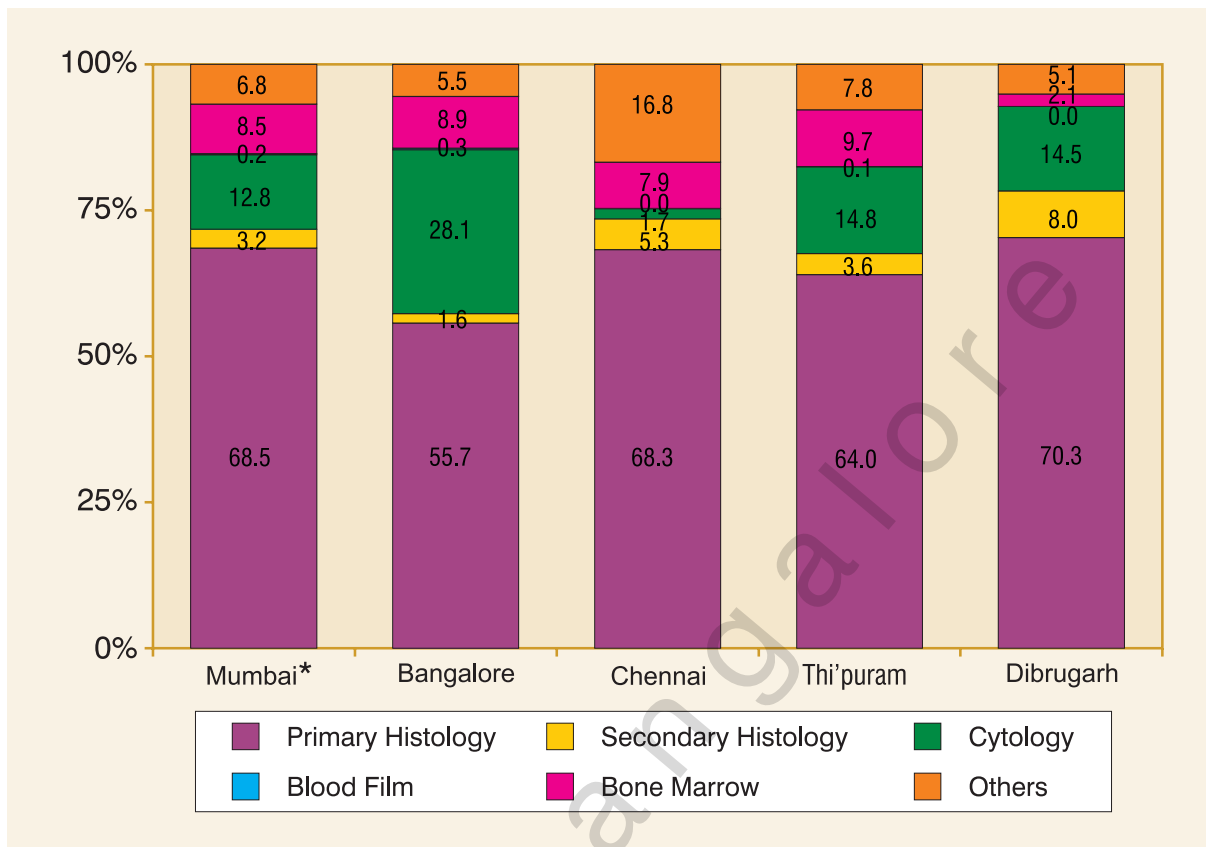


Fig. 4.2(a): Stack (100%) Diagram showing Proportion (%) of Microscopically diagnosed Patients according to Specific Microscopic Diagnosis - (2004-2006)

Males



Females

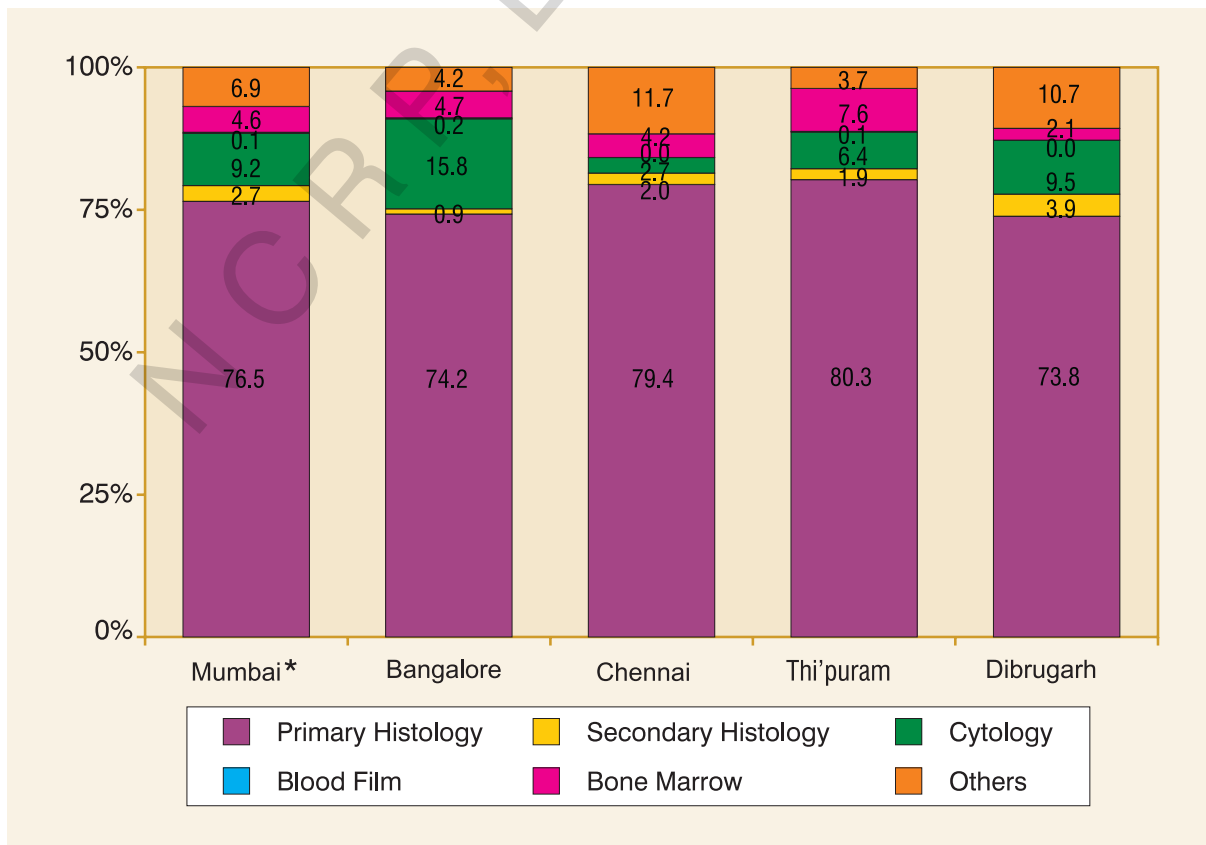


Table 4.2: Number (#) and Relative Proportion (%) of Cancers based on Different Types of Microscopic Diagnosis (2004-2006)

Type of Microscopic Diagnosis	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
Males										
Primary Histology	13293	68.5	5730	55.7	8547	68.3	8037	64.0	1253	70.3
Secondary Histology	622	3.2	166	1.6	659	5.3	454	3.6	142	8.0
Cytology	2474	12.8	2889	28.1	217	1.7	1863	14.8	258	14.5
Blood Film	38	0.2	27	0.3	4	0.0	9	0.1	0	0.0
Bone Marrow	1647	8.5	914	8.9	994	7.9	1220	9.7	38	2.1
Others	1325	6.8	567	5.5	2102	16.8	980	7.8	91	5.1
All microscopic	19399	100.0	10293	100.0	12523	100.0	12563	100.0	1782	100.0
Females										
Primary Histology	11708	76.5	8789	74.2	10791	79.4	9145	80.3	785	73.8
Secondary Histology	421	2.7	110	0.9	273	2.0	219	1.9	41	3.9
Cytology	1412	9.2	1870	15.8	372	2.7	733	6.4	101	9.5
Blood Film	20	0.1	19	0.2	0	0.0	12	0.1	0	0.0
Bone Marrow	701	4.6	555	4.7	565	4.2	860	7.5	22	2.1
Others	1051	6.9	499	4.2	1588	11.7	425	3.7	114	10.7
All microscopic	15313	100.0	11842	100.0	13589	100.0	11394	100.0	1063	100.0

* Only 2004-05 data

Table 4.3 presents the proportion of microscopic diagnosis from 1994-2006. The proportion has been more or less the same in both sexes in all the registries, except in Chennai where an increase is observed.

Table 4.4 provides the proportion of microscopic diagnosis for the five time periods of publication of HBCR reports.

The relative proportion of cytological diagnosis during the five periods has been presented in Table 4.5. The proportion has shown an increasing trend in Bangalore and Dibrugarh among males and females.

Table 4.3: Number (#) and Relative Proportion (%) of Microscopic Diagnosis across Different Years of Diagnosis

Year of Diagnosis	Mumbai*		Bangalore		Chennai		Thi'puram		Dibrugarh	
	#	%	#	%	#	%	#	%	#	%
MALES										
1994	7914	90	2913	92.9	1970	72.3	3092	88.2	710	92.8
1995	7758	88.4	3163	94.2	2041	75.8	3318	87.3	579	93.4
1996	7269	90.2	3018	94.2	2052	78.1	3563	89.7	286	92.9
1997	7945	90.9	3076	94.8	2180	78.3	3460	90.2	396	94.5
1998	7870	91.0	2838	95.1	2027	78.4	3540	91.6	513	96.2
1999	7991	90.7	2812	94.8	2270	76.4	3676	92.2	421	93.8
2000	8073	90.9	2955	93.6	2481	75.0	3625	93.4	518	93.4
2001	8375	92.1	3397	95.4	2781	82.1	4149	94.0	474	95.8
2002	8288	91.8	3285	94.8	2724	80.4	4108	93.7	470	94.8
2003	8278	92.5	3608	94.3	2989	82.3	3843	93.2	552	90.3
2004	8908	92.8	3121	93.8	3132	83.6	3942	92.8	611	94.6
2005	9166	93.5	3374	93.9	3575	83.3	3676	91.0	561	94.8
2006	-	-	3231	95.8	3714	82.8	3965	92.8	519	95.4
1994-2006	97835	91.1	40791	94.5	33936	79.9	47957	91.6	6610	94.0
FEMALES										
1994	6098	89.2	3485	94.8	2521	81.4	2921	93	397	90.2
1995	6113	88.8	3780	96.0	2592	83.0	3069	92.8	290	90.9
1996	5673	89.4	3614	95.8	2603	84.6	3173	94.3	178	90.8
1997	6283	90.4	3558	96.1	2670	84.5	3200	94.8	240	92.3
1998	6041	90.2	3320	95.9	2609	83.5	3312	95.8	264	93.3
1999	6253	90.5	3636	96.1	2986	85.5	2472	96.2	185	86.0
2000	6180	90.7	3581	93.5	3097	80.7	4488	95.6	292	92.0
2001	6454	91.4	4013	95.5	3549	89.1	3742	96.8	224	93.0
2002	6415	90.8	4020	96.5	3366	87.1	3897	96.6	260	90.3
2003	6445	92.1	4144	95.2	3606	89.3	3582	96.3	332	87.1
2004	6986	92.7	3713	96.0	3685	88.6	3570	96.6	270	89.1
2005	7276	93.5	3751	95.3	3942	88.5	3545	95.7	345	90.1
2006	-	-	3879	96.0	4374	87.8	3854	96.4	334	88.6
1994-2006	76217	90.6	48494	95.9	41600	86.7	44825	95.6	3611	90.0

* Only 2004-05 data

Table 4.4: Proportion (%) of Microscopic Diagnosis during the Five Periods 1984-93, 1994-98, 1999-00, 2001-03 and 2004-2006

Registry	Males					Females				
	1984-93	1994-98	1999-00	2001-03	2004-06	1984-93	1994-98	1999-00	2001-03	2004-06
Mumbai*	91.3	90.1	91.1	92.1	93.2	91.5	89.6	90.9	91.4	93.1
Bangalore	91.1	94.2	94.2	94.9	94.5	94.8	95.7	94.8	95.8	95.8
Chennai	69.5	76.6	75.7	82.2	83.2	71.5	83.4	83.1	88.9	88.3
Thi'puram	86.0	89.4	92.8	93.6	92.2	90.3	94.2	95.9	96.5	96.3
Dibrugarh	88.3	93.9	94.2	93.4	94.9	88.3	91.4	89.0	89.7	89.3

Table 4.5: Proportion (%) of Cytological Diagnosis during the Five Periods 1984-93, 1994-98, 1999-00, 2001-03 and 2004-2006

Registry	Males					Females				
	1984-93	1994-98	1999-00	2001-03	2004-06	1984-93	1994-98	1999-00	2001-03	2004-06
Mumbai*	13.3	13.2	13.6	14.3	12.8	8.2	9.9	9.7	10.7	9.2
Bangalore	23.2	23.6	23.2	23.7	28.1	8.5	10.7	13.5	14.7	15.8
Chennai	4.0	4.7	7.0	3.5	1.7	4.2	4.7	9.1	6.3	2.7
Thi'puram	9.6	12.8	16.0	15.5	14.8	5.6	7.3	8.4	8.0	6.4
Dibrugarh	2.6	8.1	9.7	11.9	14.5	3.6	7.6	8.4	7.8	9.5

* Only 2004-05 data.

Fine Needle Aspiration Cytology (FNAC) has been in vogue for the quick and easy diagnosis of cancer since 1980s. This is reflected in the reports of the HBCRs although this method of cytological diagnosis of cancer is mixed up with smear cytology diagnosis. However, this distinction can be made when one examines anatomical sitewise cytological diagnosis (given in Annexure tabulations).

FNAC is particularly relevant in the Indian context because several patients present in an advanced stage of cancer when even biopsy diagnosis and histological examinations become difficult.