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Doctors employed by manufacturers of medical & hospital equipment – Brazil (except São Paulo) & São Paulo State, 2006-2008

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Detailed Table 11.38

Personnel with post-graduate qualifications employed in R&D in the health industrial complex – Brazil (except São Paulo) & São Paulo State, 2003 & 2005

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Detailed Table 11.1
São Paulo State budget execution: Health function; Scientific development subfunction – 2000-2008

Year	São Paulo State budget execution: Health function; Scientific development subfunction (R\$)
2000	938,207
2001	2,996,335
2002	522,758
2003	507,029
2004	2,823,497
2005	4,143,950
2006	6,337,522
2007	6,636,104
2008	7,053,978

Source: SIAFEM, *Relatório da Execução Orçamentária (Funcional e Programática) do Governo do Estado de São Paulo*.

Detailed Table 11.2
São Paulo State budget execution: Health function; Technological Innovation & Scientific Development Program – 2004-2007

Year	São Paulo State budget execution: Health function; Technological Innovation & Scientific Development Program (R\$)
2004	7,719,303
2005	8,226,478
2006	7,608,005
2007	7,896,009

Source: SIAFEM, *Relatório da Execução Orçamentária (Funcional e Programática) do Governo do Estado de São Paulo*.

Detailed Table 11.3**São Paulo State budget execution: Health function; ST&I-related activities – 2004-2008**

Activity	São Paulo State budget execution: Health function; ST&I-related activities (R\$)				
	2004	2005	2006	2007	2008
Technological innovation in methods & processes	...	...	...	...	56,615
Scientific & technological research	...	31,854	222,816	144,723	479,895
Scientific & technological research in endemic diseases	29,624	68,449	81,877	80,210	157,762

Source: SIAFEM, *Relatório da Execução Orçamentária (Funcional e Programática) do Governo do Estado de São Paulo*.

Detailed Table 11.4
CNPq grants for biological sciences outstanding in 2008 (selected types) & São Paulo State's share in Brazil total – Brazil & São Paulo State, 2008

Selected grants	CNPq grants for biological sciences		
	Brazil	São Paulo State	SP/Brazil (%)
Master's	1,504	391	26.0
Doctorate	1,538	446	29.0
Retention of doctors	27	14	52.0
Post-doctoral research	263	84	32.0
Productivity in research & technology	1,887	717	38.0
Technological & industrial development	529	74	14.0

Source: CNPq.

Detailed Table 11.5
CNPq grants for health sciences outstanding in 2008 (selected types) & São Paulo State's share in Brazil total – Brazil & São Paulo State, 2008

Selected grants	CNPq grants for health sciences		
	Brazil	São Paulo State	SP/Brazil (%)
Master's	884	442	50.0
Doctorate	635	381	60.0
Retention of doctors	12	3	25.0
Post-doctoral research	92	48	52.0
Productivity in research & technology	1,277	677	53.0
Technological & industrial development	191	42	22.0

Source: CNPq.

Detailed Table 11.6**Expenditure on innovation by manufacturers of pharmaceutical products: monetary value & proportion of net sales – São Paulo State, 2003 & 2005**

Indicator	Manufacturers of pharmaceutical products	
	2003	2005
Innovation expenditure (R\$)	575,484	856,458
Innovation expenditure/net sales(%)	3.6	4.3

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 11.7

Expenditure on innovation by manufacturers of pharmaceutical products: monetary value & proportion of net sales – Brazil (except São Paulo State), 2003 e 2005

Indicator	Manufacturers of pharmaceutical products	
	2003	2005
Innovation expenditure (R\$)	90,764	182,269
Innovation expenditure/net sales(%)	2.5	3.6

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 11.8
Expenditure on R&D by manufacturers of pharmaceutical products: monetary value & proportion of net sales – São Paulo State, 2003 & 2005

Indicator	Manufacturers of pharmaceutical products	
	2003	2005
Intramural R&D expenditure (R\$)	78 801	111 135
Intramural R&D expenditure/net sales (%)	0,5	0,6

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 11.9

Expenditure on R&D by manufacturers of pharmaceutical products: monetary value & proportion of net sales – Brazil (except São Paulo State), 2003 & 2005

Indicator	Manufacturers of pharmaceutical products	
	2003	2005
Intramural R&D expenditure (R\$)	22,917	69,327
Intramural R&D expenditure/net sales (%)	0.6	1.4

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 11.10
Expenditure on innovation by manufacturers of medical & hospital equipment: monetary value & proportion of net sales – São Paulo State, 2003 & 2005

Indicator	Manufacturers of medical & hospital equipment	
	2003	2005
Innovation expenditure (R\$)	124,824	229,191
Innovation expenditure/net sales (%)	3.9	4.9

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 11.11
Expenditure on innovation by manufacturers of medical & hospital equipment: monetary value & proportion of net sales – Brazil (except São Paulo State), 2003 & 2005

Indicator	Manufacturers of medical & hospital equipment	
	2003	2005
Innovation expenditure (R\$)	54,204	169,043
Innovation expenditure/net sales (%)	2.1	5.9

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 11.12
Expenditure on R&D by manufacturers of medical & hospital equipment: monetary value & proportion of net sales – São Paulo State, 2003 & 2005

Indicator	Manufacturers of medical & hospital equipment	
	2003	2005
Intramural R&D expenditure (R\$)	51,355	103,343
Intramural R&D expenditure/net sales (%)	1.6	2.2

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 11.13
Expenditure on R&D by manufacturers of medical & hospital equipment: monetary value & proportion of net sales – Brazil (except São Paulo State), 2003 & 2005

Indicator	Manufacturers of medical & hospital equipment	
	2003	2005
Intramural R&D expenditure (R\$)	19,914	66,989
Intramural R&D expenditure/net sales (%)	0.8	2.3

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 11.14
FAPESP's research grants and scholarships: total disbursed and disbursements for health sciences – São Paulo State, 2004-2008

a) Disbursements (R\$)					
Knowledge area	Disbursements for research grants & scholarships (R\$)				
	2004	2005	2006	2007	2008
Total	393,900,438	481,718,579	521,839,938	549,571,058	637,856,798
Health	83,572,043	108,059,728	110,032,913	134,786,913	161,694,542
Agronomy & veterinary medicine	28,623,799	32,239,192	36,523,402	41,979,168	52,614,788
Architecture & urbanism	1,987,974	2,698,019	3,476,946	4,687,237	4,882,440
Astronomy & space science	2,737,234	2,947,045	2,978,051	3,627,939	5,036,726
Biology	68,473,545	74,990,448	81,739,139	76,783,008	96,090,595
Computer science/engineering	...	...	34,922,283	9,616,402	10,616,126
Human & social sciences	29,733,783	37,753,391	41,397,811	53,453,933	60,375,176
Economics & management	1,939,123	2,415,239	5,537,424	12,046,455	3,374,395
Engineering	58,463,078	68,571,329	74,973,875	84,881,743	87,231,021
Physics	25,299,246	32,317,596	29,949,626	25,538,950	29,659,045
Geosciences	9,842,920	16,163,375	16,458,149	15,225,082	15,900,106
Interdisciplinary	48,157,156	25,271,516	40,591,740	46,232,650	61,227,985
Mathematics & statistics	9,913,576	45,769,339	5,409,114	6,305,384	8,400,980
Chemistry	25,156,919	32,522,361	37,829,465	34,406,195	40,752,870
b) Disbursements (% total)					
Knowledge area	Disbursements for research grants & scholarships (% total)				
	2004	2005	2006	2007	2008
Total	100.0	100.0	100.0	100.0	100.0
Health	21.22	22.43	21.09	24.53	25.35
Agronomy & veterinary medicine	7.27	6.69	7	7.64	8.25
Architecture & urbanism	0.5	0.56	0.67	0.85	0.77
Astronomy & space science	0.69	0.61	0.57	0.66	0.79
Biology	17.38	15.57	15.66	13.97	15.06
Computer science/engineering	...	...	6.69	1.75	1.66
Human & social sciences	7.5	7.84	7.93	9.73	9.47
Economics & management	0.49	0.5	1.06	2.19	0.53
Engineering	14.84	14.23	14.37	15.45	13.68
Physics	6.42	6.71	5.74	4.65	4.65
Geosciences	2.5	3.36	3.16	2.77	2.49
Interdisciplinary	12.23	5.25	7.78	8.41	9.6
Mathematics & statistics	2.52	9.5	1.04	1.15	1.32
Chemistry	6.39	6.75	7.25	6.26	6.39

Source: FAPESP, *Relatórios de atividades* (2004 - 2008).

Note: The difference between the sum of disbursements per area and the total disbursed in each year corresponds to disbursements in other areas.

Detailed Table 11.15
FAPESP's special programs: total disbursed and disbursements for health sciences – São Paulo State, 2008

Special program	Disbursements for special programs (R\$)	
	Total	Health
Total	91,097,830	18,548,046
CInAPCe Health	22,807,774	4,746,223
CInAPCe Health	6,862,087	6,862,087
Public Education – Health	1,230,436	27,566
Technical Training – Health	4,575,22	970,655
Research Infrastructure	52,089,656	5,643,912
MídiaCiência (1)	314,499	...
FAPESP-CNPq Agreements	3,218,155	297,603

Source: FAPESP, *Relatórios de atividades* (2004 - 2008).

(1) Not broken down by knowledge area.

Detailed Table 11.16
FAPESP: disbursements for technological innovation research programs by selected program – São Paulo State, 2004-2008

Selected programs	Disbursements for technological innovation research programs (R\$)				
	2004	2005	2006	2007	2008
Total technological innovation programs	53,806,158	75,480,707	72,338,734	73,822,746	74,623,001
Research, Innovation & Dissemination Centers (CEPID)	19,374,490	24,839,663	22,293,478	19,312,325	25,561,211
Partnership for Technological Innovation Program/Unified Health System (PITE-SUS)	...	...	368,784	733,248	879,553
Public Policy Research Program for the Unified Health System (PP-SUS)	...	...	593,381	1,181,668	1,572,815

Source: FAPESP, *Relatórios de atividades* (2004 - 2008).

Detailed Table 11.17
FAPESP: disbursements for Partnership for Technological Innovation Program (PITE) by knowledge area – São Paulo State, 2004-2008

Knowledge area	Disbursements for PITE (R\$)				
	2004	2005	2006	2007	2008
Total	7,942,790	7,226,152	3,980,183	4,024,273	3,812,677
Health	293,321	338,362	447,743	1,067,567	259,717
Other areas	7,649,469	6,887,790	3,532,440	2,956,706	3,552,960
Health/Total (%)	3.7	4.7	11.2	26.5	6.8

Source: FAPESP, *Relatórios de atividades* (2004 - 2008).

Detailed Table 11.18
FAPESP: disbursements for Technological Innovation in Small Business Program (PIPE) by knowledge area
– São Paulo State, 2004-2008

Knowledge area	Disbursements for PIPE (R\$)				
	2004	2005	2006	2007	2008
Total	9,584,369	15,316,748	18,125,188	29,662,343	27,385,657
Health	448,376	1,126,084	1,753,205	2,294,470	2,120,569
Other areas	9,135,993	14,190,664	16,371,983	27,367,873	25,265,088
Health/Total (%)	4.7	7.4	9.7	7.7	7.7

Source: FAPESP, *Relatórios de atividades* (2004 - 2008).

Detailed Table 11.19
Scientific articles on health sciences published in Brazilian journals & share of total by knowledge subarea – São Paulo State, 2000-2008

Knowledge subarea	Scientific articles on health sciences published in Brazilian journals & share of total									
	São Paulo State (abs. nos.)					São Paulo State/Brazil (%)				
	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census
Physical education	411	635	873	1,615	2,341	56.3	53.3	41.4	39.3	38.5
Nursing	1,277	1,791	2,498	2,898	2,960	54.5	56.4	51.6	42.3	36.5
Pharmacy	248	398	845	1,042	1,238	34.7	28.8	27.9	26.8	23.2
Physiotherapy & occupational therapy	221	283	518	898	1,304	73.7	68.0	61.2	54.2	52.0
Speech-language therapy	200	369	683	857	940	82.3	78.5	74.7	71.2	67.8
Medicine	3,655	6,518	11,956	11,234	12,350	54.0	57.6	57.7	53.2	51.9
Nutrition	418	596	1,239	1,165	1,142	48.4	48.6	49.0	40.6	38.1
Dentistry	2,243	3,459	5,700	6,381	5,646	71.7	66.0	61.4	54.4	48.9
Collective health	674	1,243	2,610	3,374	4,182	27.1	32.2	32.8	30.5	30.4

Source: CNPq, Research Group Directory Census 2000, 2002, 2004, 2006 & 2008.

Detailed Table 11.20
Scientific articles on biological sciences published in Brazilian journals & share of total by knowledge subarea – São Paulo State, 2000-2008

Knowledge subarea	Scientific articles on biological sciences published in Brazilian journals & share of total									
	São Paulo State (abs. nos.)					São Paulo State/Brazil (%)				
	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census
Biochemistry	221	316	1,173	830	797	29.8	27.4	32.9	27.2	22.2
Pharmacology	219	270	713	592	649	38.5	29.2	36.2	26.3	25.9
Physiology	262	368	849	711	858	49.2	47.4	43.7	37.2	37.0
Genetics	301	403	1,323	1,315	1,578	31.4	27.8	31.5	31.6	28.7
Immunology	121	155	543	281	486	29.3	27.7	30.0	19.4	24.1
Microbiology	288	458	1,286	921	952	32.0	28.2	32.8	27.7	26.0
Morphology	219	433	684	658	602	40.0	50.3	47.7	39.8	32.2
Parasitology	81	96	280	149	224	9.6	7.6	10.5	8.0	10.8

Source: CNPq, Research Group Directory Census 2000, 2002, 2004, 2006 & 2008.

Detailed Table 11.21
Scientific articles on health sciences published in international journals & share of total by knowledge subarea – São Paulo State, 2000-2008

Knowledge subarea	Scientific articles on health sciences published in international journals & share of total									
	São Paulo State (abs. nos.)					São Paulo State/Brazil (%)				
	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census
Physical education	126	183	257	733	1,214	67.7	67.5	40.3	46.5	44.7
Nursing	166	268	296	657	1,195	74.8	70.5	56.2	59.2	57.5
Pharmacy	564	775	1,268	2,604	3,322	39.1	33.6	35.9	33.4	34.5
Physiotherapy & occupational therapy	114	164	183	537	711	69.1	60.7	53.4	56.3	52.6
Speech-language therapy	51	97	90	171	296	72.9	79.5	70.3	71.5	82.9
Medicine	3,206	6,285	8,277	15,588	20,207	55.0	58.8	60.0	58.6	56.1
Nutrition	332	488	645	791	971	59.1	56.7	52.7	47.2	43.3
Dentistry	1,229	1,734	2,614	5,892	7,421	80.9	76.4	70.7	68.0	61.9
Collective health	527	757	870	1,913	2,661	37.1	36.7	31.1	30.9	30.2

Source: CNPq, Research Group Directory Census 2000, 2002, 2004, 2006 & 2008.

Detailed Table 11.22
Scientific articles on biological sciences published in international journals & share of total by knowledge subarea – São Paulo State, 2000-2008

Knowledge subarea	Scientific articles on biological sciences published in international journals & share of total									
	São Paulo State (abs. nos.)					São Paulo State/Brazil (%)				
	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census
Biochemistry	1,369	2,411	3,011	3,960	4,698	33.9	41.3	39.6	33.2	33.3
Pharmacology	995	1,195	1,826	2,667	3,512	43.7	36.2	41.3	37.4	40.8
Physiology	697	1,102	1,322	2,129	2,429	39.9	45.4	45.5	41.6	39.9
Genetics	849	1,539	1,777	3,569	4,433	33.2	39.0	37.6	38.8	35.6
Immunology	649	1,050	1,527	1,953	2,470	39.6	40.8	48.3	40.0	36.5
Microbiology	832	1,156	1,392	2,419	2,781	33.8	32.6	34.3	34.2	34.2
Morphology	588	724	1,094	1,977	1,979	47.2	42.7	48.4	47.8	42.7
Parasitology	351	462	516	752	1,181	18.1	17.2	18.7	16.7	19.6

Source: CNPq, Research Group Directory Census 2000, 2002, 2004, 2006 & 2008.

Detailed Table 11.23
ISI-indexed scientific articles on the top ten diseases by U.S. funding – United States & Brazil, 1900-2009
(cumulative)

Disease	ISI-indexed scientific articles on top ten diseases by U.S. funding						
	Total articles	USA			Brazil		
		Abs. nos	Share of total articles (%)	Share of total U.S. articles (%)	Abs. nos.	Share of total articles (%)	Share of total Brazilian articles (%)
Total	591,035	224,638	38.0	100.0	9,219	1.6	100.0
Pneumonia, influenza	67,760	25,842	38.1	11.5	664	1.0	7.2
AIDS	67,429	34,461	51.1	15.3	1,236	1.8	13.4
Cancer	65,645	23,821	36.3	10.6	1,090	1.7	11.8
Cardiovascular	65,528	23,588	36.0	10.5	1,433	2.2	15.5
Hypertension	64,285	20,970	32.6	9.3	1,609	2.5	17.5
Diabetes	60,929	22,135	36.3	9.9	1,279	2.1	13.9
Asthma	57,210	17,707	31.0	7.9	597	1.0	6.5
Atherosclerosis	54,788	18,648	34.0	8.3	583	1.1	6.3
Schizophrenia	48,033	19,089	39.7	8.5	393	0.8	4.3
Alzheimer's	39,428	18,377	46.6	8.2	335	0.8	3.6

Source: ISI, Web of Science.

Detailed Table 11.24
Number of patents in Class A61, Medical or Veterinary Science: Hygiene (1), granted to residents by INPI – Brazil & São Paulo State, 1980-2005

Subperiod	No. of Class A61 patents granted to residents (1)		
	Brazil	São Paulo State	Other states
Total	2,493	1,396	1,097
1980-84	11	8	3
1985-89	139	94	45
1990-94	275	176	99
1995-99	891	468	423
2000-05	1,177	650	527

Source: INPI.

1) The following subclasses of Class A61 were excluded: A61D (veterinary instruments, implements, tools or methods); A61Q (specific use of cosmetics or similar toilet preparations for personal hygiene).

Detailed Table 11.25
Number of INPI patents granted to residents in Class A61, Medical or Veterinary Science: Hygiene (1) by region & state – Brazil, 1980-2005

Year / Period	Number of A61 (1) patents granted to residents by region & state																				
	Southeast					South				Northeast					Central West				North		
	SP	RJ	MG	ES	PR	RS	SC	PE	CE	BA	PB	RN	MA	PI	DF	GO	MS	MT	PA	AM	AP
Total																					
1980-2005	1,396	279	206	18	151	139	87	41	29	28	14	6	5	1	46	26	7	3	7	3	1
Total																					
1980-1984	8	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
1980	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1982	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1983	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1984	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Total																					
1985-1989	94	17	10	-	4	10	1	1	-	-	1	-	-	-	1	-	-	-	-	-	-
1985	2	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
1986	3	-	1	-	-	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
1987	18	-	4	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1988	39	4	-	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1989	32	11	5	-	3	3	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Total																					
1990-1994	176	39	20	-	7	13	4	5	-	1	-	1	1	1	4	2	-	1	-	-	-
1990	24	8	4	-	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
1991	45	6	7	-	1	2	1	2	-	1	-	-	-	-	-	1	-	-	-	-	-
1992	31	6	3	-	1	2	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-
1993	48	10	2	-	1	2	-	2	-	-	-	-	-	1	-	1	-	-	-	-	-
1994	28	9	4	-	2	7	2	-	-	-	-	-	1	-	2	-	-	1	-	-	-
Total																					
1995-1999	468	114	86	9	50	55	25	14	14	20	2	2	2	-	19	6	3	1	1	-	-
1995	35	6	3	-	1	8	2	-	1	2	-	-	-	-	1	-	-	-	-	-	-
1996	40	9	6	-	1	6	3	-	2	1	-	-	-	-	2	-	-	-	-	-	-
1997	100	17	18	1	8	9	4	2	-	2	-	1	-	-	7	1	1	-	-	-	-
1998	129	35	37	4	19	14	6	1	5	7	2	-	-	-	3	5	1	1	1	-	-
1999	164	47	22	4	21	18	10	11	6	8	-	1	2	-	6	-	1	-	-	-	-
Total																					
2000-2005	650	107	90	9	90	61	57	21	15	7	11	3	2	-	22	17	4	1	6	3	1
2000	84	12	7	-	7	5	8	6	2	1	1	-	-	-	1	-	-	-	-	-	-
2001	71	9	9	-	8	7	9	3	1	1	2	-	-	-	3	1	-	-	-	-	-
2002	91	16	18	2	13	11	10	4	1	1	2	-	-	-	4	-	-	-	-	-	-
2003	146	16	15	3	8	11	10	2	1	1	-	1	-	-	9	6	-	-	-	1	1
2004	139	25	20	1	27	17	9	1	4	1	2	-	-	-	4	3	1	-	3	1	-
2005	119	29	21	3	27	10	11	5	6	2	4	2	2	-	1	7	3	1	3	1	-

Source: INPI.

(1) The following subclasses of Class A61 were excluded: A61D (veterinary instruments, implements, tools or methods); A61Q (specific use of cosmetics or similar toilet preparations for personal hygiene).

Detailed Table 11.26
Number of INPI patents granted to residents in Class A61, Medical or Veterinary Science: Hygiene by administrative area – São Paulo State, 1980-2005

Administrative region (RA)	Number of A61 (1) patents granted to residents by period				
	1980-1984	1985-1989	1990-1994	1995-1999	2000-2005
Total	8	94	176	468	650
Subtotal	8	94	176	468	616
RA Araçatuba	-	-	-	3	2
RA Bauru	-	1	2	4	5
RA Barretos	-	-	-	1	1
RA Campinas	1	16	30	49	131
RA Central	-	1	1	6	21
RA Franca	-	-	1	1	1
RA Marília	-	-	-	8	2
RA Presidente Prudente	-	-	-	-	1
RA Registro	-	-	1	-	-
RA Ribeirão Preto	2	11	5	16	28
RA Sorocaba	-	-	-	10	25
RA São José dos Campos	-	-	-	7	30
RA São José do Rio Preto	-	-	3	3	17
RA Baixada Santista	-	-	-	3	4
RA São Paulo	5	65	133	357	348
Unidentified	-	-	-	-	34

Source: INPI.

1) The following subclasses of Class A61 were excluded: A61D (veterinary instruments, implements, tools or methods); A61Q (specific use of cosmetics or similar toilet preparations for personal hygiene).

Detailed Table 11.27
Technological production in health sciences & São Paulo State's share of total by knowledge subarea – São Paulo State, 2000-2008

Knowledge subarea	Technological production in health sciences & share of total									
	São Paulo State (abs. nos.)					São Paulo State/Brazil (%)				
	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census
Physical education										
Registered or patented	0	0	0	5	7	0.0	0.0	0.0	27.8	33.3
Not registered or patented	11	8	3	9	10	50.0	26.7	8.3	30.0	37.0
Nursing										
Registered or patented	2	2	2	2	12	100.0	100.0	25.0	22.2	50.0
Not registered or patented	5	18	13	10	18	20.8	48.6	26.0	18.5	16.8
Pharmacy										
Registered or patented	3	3	36	52	64	21.4	14.3	43.4	27.2	28.6
Not registered or patented	40	40	36	18	19	83.3	62.5	38.7	20.9	28.4
Physiotherapy, occupational therapy										
Registered or patented	0	0	2	0	13	0.0	0.0	50.0	0.0	61.9
Not registered or patented	5	10	15	9	12	55.6	62.5	50.0	30.0	46.2
Speech-language therapy										
Registered or patented	0	0	0	1	1	0.0	0.0	0.0	100.0	100.0
Not registered or patented	0	2	3	1	2	0.0	100.0	50.0	33.3	100.0
Medicine										
Registered or patented	15	19	75	149	119	71.4	55.9	74.3	71.6	58.6
Not registered or patented	10	21	46	85	57	27.0	33.3	30.3	35.4	38.5
Nutrition										
Registered or patented	0	2	10	5	3	0.0	50.0	90.9	38.5	25.0
Not registered or patented	0	1	17	8	5	0.0	20.0	28.8	12.7	13.5
Dentistry										
Registered or patented	2	7	21	21	43	66.7	70.0	47.7	40.4	40.6
Not registered or patented	23	31	37	26	18	69.7	72.1	57.8	35.1	23.1
Collective health										
Registered or patented	1	2	3	5	7	12.5	40.0	21.4	12.5	22.6
Not registered or patented	8	21	16	58	47	24.2	32.8	24.6	39.5	20.8

Source: CNPq, Research Group Directory Census 2000, 2002, 2004, 2006 & 2008.

Detailed Table 11.28
Technological production in biological sciences & São Paulo State's share of total by knowledge subarea –
São Paulo State, 2000-2008

Knowledge subarea	Technological production in biological sciences & share of total									
	São Paulo State (abs. nos.)					São Paulo State/Brazil (%)				
	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census
Biochemistry										
Registered or patented	7	17	43	69	85	12.3	17.9	22.8	24.9	41.7
Not registered or patented	20	33	18	35	20	35.1	34.7	9.5	12.6	23.5
Pharmacology										
Registered or patented	0	2	9	20	15	0.0	4.9	7.9	12.0	17.1
Not registered or patented	15	12	20	3	5	48.4	29.3	17.5	1.8	55.6
Physiology										
Registered or patented	0	1	4	10	3	0.0	2.1	4.3	6.6	14.3
Not registered or patented	7	4	0	6	4	38.9	8.5	0.0	4.0	12.9
Genetics										
Registered or patented	4	0	9	19	23	8.3	0.0	5.2	6.3	14.3
Not registered or patented	10	3	12	26	57	20.8	3.4	6.9	8.6	34.1
Immunology										
Registered or patented	12	18	28	21	17	66.7	46.2	33.3	19.3	17.5
Not registered or patented	3	14	12	17	10	16.7	35.9	14.3	15.6	24.4
Microbiology										
Registered or patented	0	2	12	18	31	0.0	2.3	7.3	8.8	41.3
Not registered or patented	22	13	11	20	18	47.8	15.1	6.7	9.8	39.1
Morphology										
Registered or patented	0	0	3	8	7	0.0	0.0	3.2	5.2	18.4
Not registered or patented	4	4	14	12	3	12.9	6.8	15.1	7.8	21.4
Parasitology										
Registered or patented	1	1	5	9	17	9.1	5.3	11.9	15.5	23.9
Not registered or patented	0	0	5	3	4	0.0	0.0	11.9	5.2	14.8

Source: CNPq, Research Group Directory Census 2000, 2002, 2004, 2006 & 2008.

Detailed Table 11.29
Technological processes produced in health sciences & São Paulo State's share of total by knowledge subarea – São Paulo State, 2000-2008

Knowledge subarea	Technological processes produced in health sciences & share of total									
	São Paulo State (abs. nos.)					São Paulo State/Brazil (%)				
	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census
Physical education										
Registered or patented	0	0	1	2	2	0.0	0.0	100.0	50.0	66.7
Not registered or patented	0	0	7	3	14	0.0	0.0	41.2	18.8	46.7
Nursing										
Registered or patented	0	0	1	3	5	0.0	0.0	11.1	30.0	62.5
Not registered or patented	3	8	9	10	10	18.8	22.2	19.1	17.2	18.9
Pharmacy										
Registered or patented	1	1	17	18	29	33.3	8.3	30.9	14.4	23.6
Not registered or patented	0	1	24	18	29	0.0	5.9	40.0	24.3	37.2
Physiotherapy, occupational therapy										
Registered or patented	0	0	1	2	8	0.0	0.0	100.0	66.7	80.0
Not registered or patented	1	2	4	7	10	100.0	33.3	50.0	58.3	55.6
Speech-language therapy										
Registered or patented	0	0	0	1	1	0.0	0.0	0.0	100.0	100.0
Not registered or patented	0	15	25	5	19	0.0	100.0	100.0	83.3	90.5
Medicine										
Registered or patented	3	3	44	37	31	25.0	37.5	66.7	48.1	38.8
Not registered or patented	6	31	76	67	97	14.0	40.8	35.0	27.9	48.0
Nutrition										
Registered or patented	0	0	3	1	2	0.0	0.0	75.0	33.3	33.3
Not registered or patented	0	1	1	4	5	0.0	14.3	7.1	14.3	25.0
Dentistry										
Registered or patented	1	1	8	17	21	33.3	33.3	21.6	27.9	29.2
Not registered or patented	4	33	113	58	35	19.0	66.0	89.7	61.1	46.7
Collective health										
Registered or patented	0	0	0	4	5	0.0	0.0	0.0	20.0	13.9
Not registered or patented	6	14	44	116	47	17.6	46.7	54.3	58.0	35.3

Source: CNPq, Research Group Directory Census 2000, 2002, 2004, 2006 & 2008.

Detailed Table 11.30
Technological processes produced in biological sciences & São Paulo State's share of total by knowledge subarea – São Paulo State, 2000-2008

Knowledge area	Technological processes produced in biological sciences & share of total									
	São Paulo State (abs. nos.)					São Paulo State/Brazil (%)				
	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census	2000 Census	2002 Census	2004 Census	2006 Census	2008 Census
Biochemistry										
Registered or patented	10	13	40	52	35	62.5	41.9	36.7	33.3	31.5
Not registered or patented	3	17	32	27	16	20.0	50.0	46.4	37.5	26.2
Pharmacology										
Registered or patented	0	0	9	9	11	0.0	0.0	45.0	29.0	22.0
Not registered or patented	4	9	20	12	6	100.0	42.9	36.4	25.5	18.8
Physiology										
Registered or patented	1	0	0	6	6	100.0	0.0	0.0	26.1	31.6
Not registered or patented	2	3	1	3	6	50.0	42.9	10.0	27.3	14.3
Genetics										
Registered or patented	2	2	20	11	11	15.4	18.2	35.1	17.5	14.5
Not registered or patented	8	6	17	33	6	33.3	21.4	27.4	35.9	9.1
Immunology										
Registered or patented	7	1	13	9	11	100.0	33.3	61.9	26.5	25.0
Not registered or patented	2	12	19	8	6	33.3	63.2	57.6	29.6	14.6
Microbiology										
Registered or patented	0	2	15	19	25	0.0	10.5	30.0	23.5	20.8
Not registered or patented	1	5	24	16	38	6.3	20.8	43.6	27.6	59.4
Morphology										
Registered or patented	0	0	1	0	4	0.0	0.0	33.3	0.0	22.2
Not registered or patented	0	1	1	3	10	0.0	12.5	8.3	11.5	32.3
Parasitology										
Registered or patented	2	2	5	1	2	66.7	20.0	16.1	2.3	3.8
Not registered or patented	0	1	10	2	0	0.0	7.7	29.4	3.5	0.0

Source: CNPq, Research Group Directory Census 2000, 2002, 2004, 2006 & 2008.

Detailed Table 11.31
New & enrolled students & students graduating from post-graduate programs in health sciences –
Brazil, 1987-2006

Year	Post-graduate students in health science programs					
	New students		Enrolled students (1)		Graduates	
	Master's	Doctorate	Master's	Doctorate	Master's	Doctorate
1987	1,013	293	3,728	1,271	515	166
1988	1,185	383	3,963	1,398	562	239
1989	1,154	420	4,047	1,380	573	220
1990	1,532	511	4,695	1,793	728	335
1991	1,449	617	4,911	1,832	829	385
1992	1,465	532	4,914	2,046	983	324
1993	1,612	704	5,194	2,417	988	352
1994	1,896	760	5,488	2,926	1,067	380
1995	2,099	839	6,155	3,042	1,233	489
1996	2,206	803	6,113	3,225	1,368	604
1997	2,270	984	6,334	3,633	1,638	666
1998	2,869	1,116	7,464	4,239	1,948	791
1999	3,136	1,445	8,070	4,660	2,430	1,055
2000	3,574	1,252	8,196	4,856	2,933	1,038
2001	3,925	1,399	8,428	5,099	2,844	1,105
2002	3,861	1,483	8,512	5,157	3,573	1,425
2003	4,975	1,925	8,839	5,654	4,186	1,549
2004	4,960	1,676	9,896	5,991	3,854	1,473
2005	5,566	1,818	10,691	6,487	4,567	1,682
2006	5,759	2,055	11,268	7,131	4,727	1,731

Source: CAPES.

(1) In December.

Detailed Table 11.32
Post-graduate programs in medicine I (1), medicine II (2), medicine III (3) & collective health (4) by region & Southeastern state – Brazil, 2007

Region/State	Post-graduate programs in medicine I (1), medicine II (2), medicine III (3) & collective health (4)		
	Nº	%	
Brazil	235	100.0	...
Southeast Region	157	66.8	100.0
São Paulo	108	...	68.8
Rio de Janeiro	31	...	19.7
Minas Gerais	16	...	10.2
Espírito Santo	2	...	1.3
South Region	33	14.0	...
Northeast Region	33	14.0	...
Central West Region	9	3.8	...
North Region	3	1.3	...

Source: CAPES.

(1) Medicine I includes post-graduate programs in cancer care, cardiology, rehabilitation, health, gastroenterology, medical sciences, clinical medicine, dermatology, health economics, clinical emergencies, physiopathology, hepatology, health informatics, internal medicine and therapeutics, medicine, pulmonology, nephrology, oncology, clinical research on infectious diseases, and health and behavior.

(2) Medicine II includes allergy, immunopathology, food, nutrition and health, clinical analysis, science, physiopathology, nutrition, human nutrition, applied human nutrition, health sciences, pediatrics, psychiatry, infectious and parasitic diseases, tropical diseases, physics applied to medicine and biology, infectology, neurology, anatomical pathology, haematology, neurology, radiology, mental health, pediatric medicine and child health, tropical medicine, neuropsychiatry and behavioral sciences, pathology, psychobiology, rheumatology, child and adolescent health, and mother and child health.

(3) Medicine III includes anaesthesiology, general surgery, health sciences, surgery, surgery and experimentation, plastic surgery, physiopathology and surgical sciences, gynaecology, obstetrics and mastology, otorhinolaryngology, obstetrics and gynaecology, urology, digestive surgery, cardiovascular surgery, general surgery, thoracic surgery, clinical surgery, surgical gastroenterology, neurosurgery, ophthalmology, orthopedics and trauma, head and neck surgery, principles of surgery.

(4) Collective health includes collective healthcare, health sciences, epidemiology, preventive medicine, collective health, community health, family health, women's and children's health, public health, and public health and environment.

Detailed Table 11.33
Masters employed by manufacturers of pharmaceutical products – Brazil (except São Paulo) & São Paulo State, 2006-2008

Geographic area	Masters employed by manufacturers of pharmaceutical products		
	2006	2007	2008
Brazil	129	134	219
São Paulo State	98	111	192
Other states	31	23	27

Source: MTE, RAIS.

Detailed Table 11.34
Doctors employed by manufacturers of pharmaceutical products – Brazil (except São Paulo) & São Paulo State, 2006-2008

Geographic area	Doctors employed by manufacturers of pharmaceutical products		
	2006	2007	2008
Brazil	122	152	228
São Paulo State	102	123	183
Other states	20	29	45

Source: MTE, RAIS.

Detailed Table 11.35

Masters employed by manufacturers of medical & hospital equipment – Brazil (except São Paulo) & São Paulo State, 2006-2008

Geographic area	Masters employed by manufacturers of medical & hospital equipment		
	2006	2007	2008
Brazil	40	53	81
São Paulo State	32	39	74
Other states	8	14	7

Source: MTE, RAIS.

Detailed Table 11.36
Doctors employed by manufacturers of medical & hospital equipment – Brazil (except São Paulo) & São Paulo State, 2006-2008

Geographic area	Masters employed by manufacturers of medical & hospital equipment		
	2006	2007	2008
Brazil	7	10	16
São Paulo State	6	9	16
Other states	1	1	0

Source: MTE, RAIS.

Detailed Table 11.37
Personnel employed in R&D in the health industrial complex – Brazil (except São Paulo) & São Paulo State, 2003 & 2005

Geographic area	Personnel employed in R&D in the health industrial complex	
	2003	2005
Brazil	913	1 210
São Paulo State	574	737
Other states	339	473

Source: IBGE, PINTEC 2003 & 2005.

Detailed Table 11.38
Personnel with post-graduate qualifications employed in R&D in the health industrial complex – Brazil
(except São Paulo) & São Paulo State, 2003 & 2005

Geographic area	Personnel with post-graduate qualifications employed in R&D in the health industrial complex	
	2003	2005
Brazil	174	172
São Paulo State	112	90
Other states	62	82

Source: IBGE, PINTEC 2003 & 2005.

