



SURVEY: RADIATION ONCOLOGY IN SPAIN

Asumpta Company



Association of Radiotherapy and Oncology of the Mediterranean orCa

SEOR

Sociedad Española Oncología Radioterápica

CANCER INCIDENCE. SPAIN

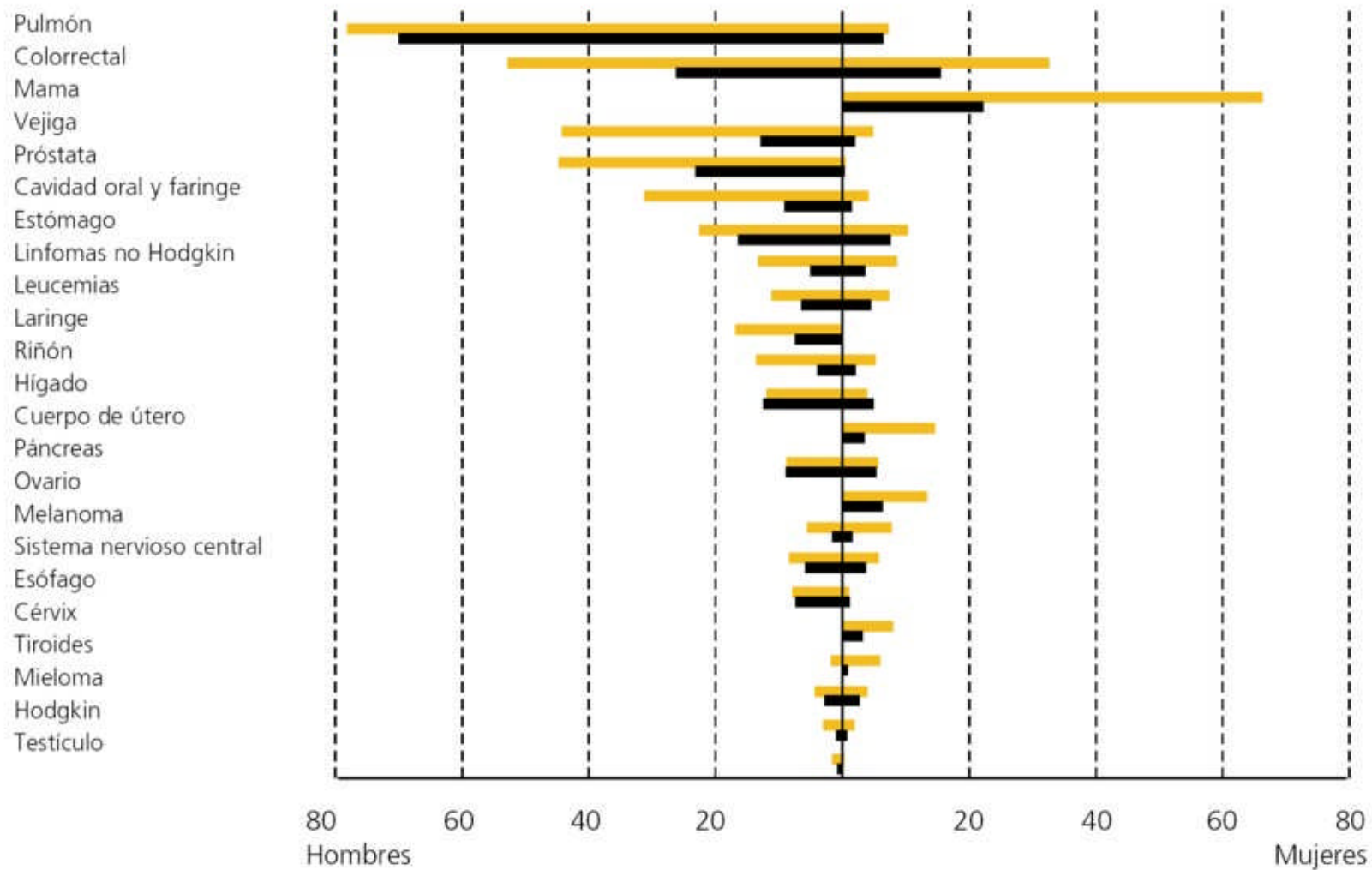
TABLA 5.2. ESTIMACIÓN DE LA INCIDENCIA ANUAL DE CÁNCER EN ESPAÑA EN EL PERIODO 1997-2000

Localización Tumoral	HOMBRES MEN			MUJERES WOMENS			AMBOS SEXOS Total casos
	Casos	IC al 95%	TA	Casos	IC al 95%	TA	
Todos excepto la piel	97050	69560-132927	448,08	64977	49526-83465	247,19	162027
Colon y Recto	14204	9977-19753	63,58	11461	8152-15679	39,01	25665
Pulmón	16690	12271-22084	77,40	2131	1455-3036	8,07	18821
Mama	-	-	-	15979	10508-23586	67,06	15979
Vejiga	12727	6441-23121	58,06	1750	1371-2201	5,56	14477
Próstata	13212	6245-24524	56,29	-	-	-	13212
Útero y Cérvix	-	-	-	7164	4120-11657	31,92	7164
Estómago	2896	1964-4118	12,76	3454	1752-6225	11,42	6350
LNH	3253	1868-5280	15,25	2209	1696-2846	8,19	5462
Laringe	3705	2034-6248	18,31	852	54-3897	3,66	4557
Encéfalo	1954	953-3650	9,56	287	194-410	0,97	2241
Hígado	3081	2233-4158	13,85	1309	807-2025	4,02	4390
Leucemias	2436	1873-3104	11,15	1852	1429-2361	6,75	4288
Páncreas	1919	1449-2516	8,87	1675	1247-2238	5,30	3594
Esófago	1512	1319-1730	7,46	257	160-406	0,89	1769
Riñón	1441	374-3923	6,71	1189	771-1772	4,59	2630
Melanoma	1283	597-2406	6,14	1785	1231-2543	7,26	3068
Hodgkin	890	386-1773	4,23	528	244-1009	2,29	1418
Mieloma	795	384-1471	3,54	769	532-1063	2,54	1564
Ovario	-	-	-	2997	1735-4870	12,31	2997
Tiroides	456	48-1776	2,22	1278	205-4246	5,69	1734
Vesícula	696	497-944	3,06	1542	761-2804	4,52	2238
Testículo	820	60-3706	3,85	-	-	-	820

TA: Tasa ajustada por edad (población europea)
IC: Intervalo de credibilidad



FIGURA 1.1. INCIDENCIA Y MORTALIDAD POR CÁNCER EN ESPAÑA EN HOMBRES Y MUJERES



Fuente: EUCAN Ferlay 1999.



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SURVEY: RADIATION ONCOLOGY FACILITIES IN SPAIN 2004

	Public	Private-Public	Private	Total
Centres	57	25	15	97
Only BT	0	1	1	2
MV units	121	40	20	181
Cobalt	37	7	1	45
LINAC	84	33	19	136



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UNITS / REGION

	1991-92	1998-99	2004	Difference 98-04	%
Estado Español	130	157	181	24	13,26
Andalucía	21	24	26	2	1,1
Aragón	4	3	5	2	1,1
Asturias	4	5	5	0	0
Baleares I.	4	3	2	-1	-0,55
Canarias I.	6	7	7	0	0
Cantabria	4	3	3	0	0
C. La Mancha	0	1	5	4	2,21
C. León	4	8	11	3	1,65
Cataluña	25	30	34	4	2,21
C. Valenciana	11	16	19	3	1,65
Extremadura	3	3	4	1	0,55
Galicia	5	8	11	3	1,65
Madrid	23	31	30	-1	-0,55
Murcia	2	2	3	1	0,55
Navarra	4	3	5	2	1,1
País vasco	8	9	10	1	0,55

UNITS / REGION AND ADMINISTRATION

Region	Units	Public and Public-Private	Private only
Estado Español	181	161	20
Andalucía	26	25	1
Aragón	5	4	1
Asturias	5	5	0
Baleares I.	2	1	1
Canarias I.	7	7	0
Cantabria	3	2	1
C. La Mancha	5	5	1
C. León	11	10	1
Cataluña	34	29	5
C. Valenciana	19	17	2
Extremadura	4	4	0
Galicia	11	11	0
Madrid	30	25	5
Murcia	3	3	1
Navarra	5	2	3
País vasco	10	10	0
La Rioja	1	1	0

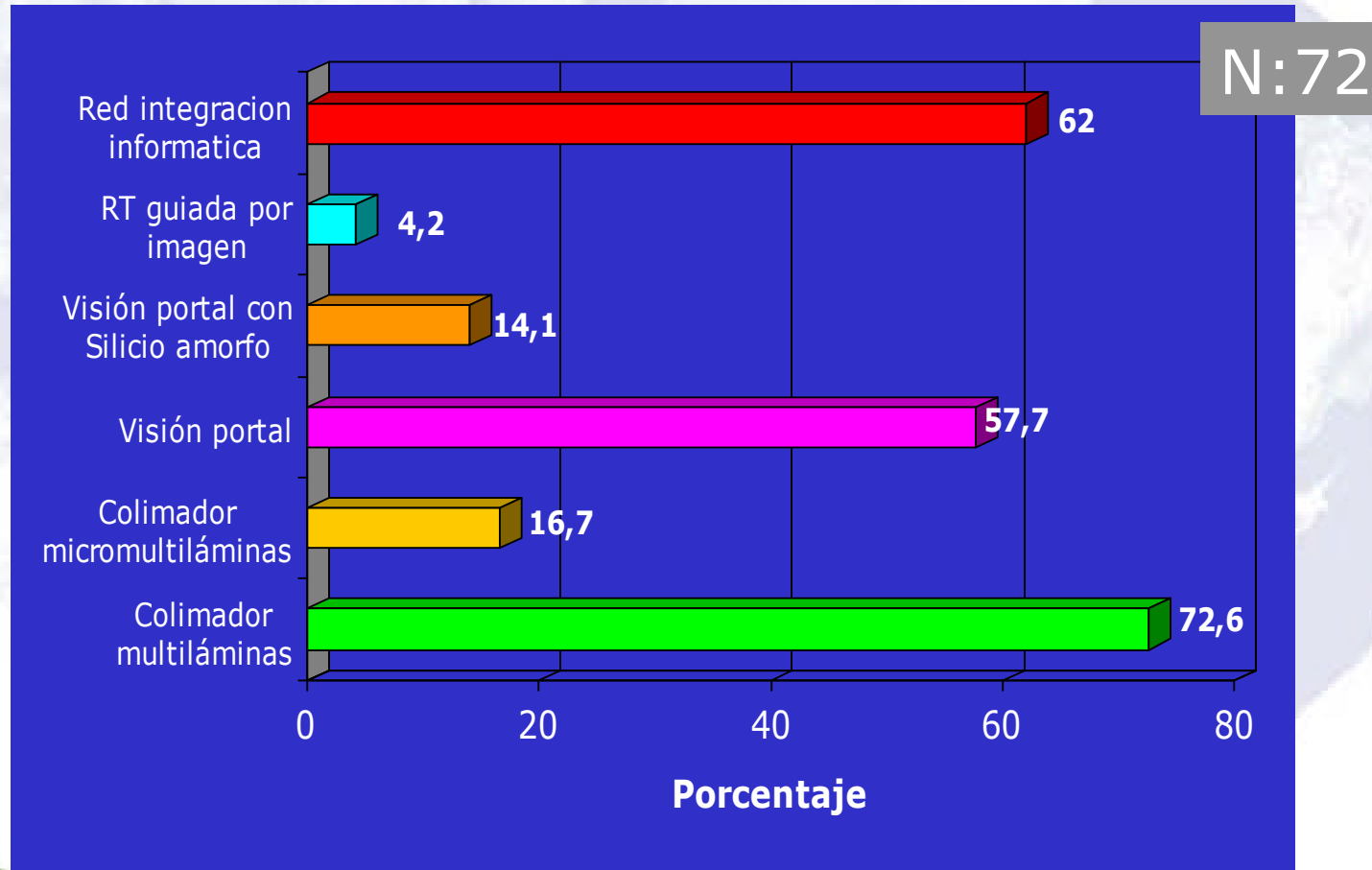


INFRAESTRUCTURES

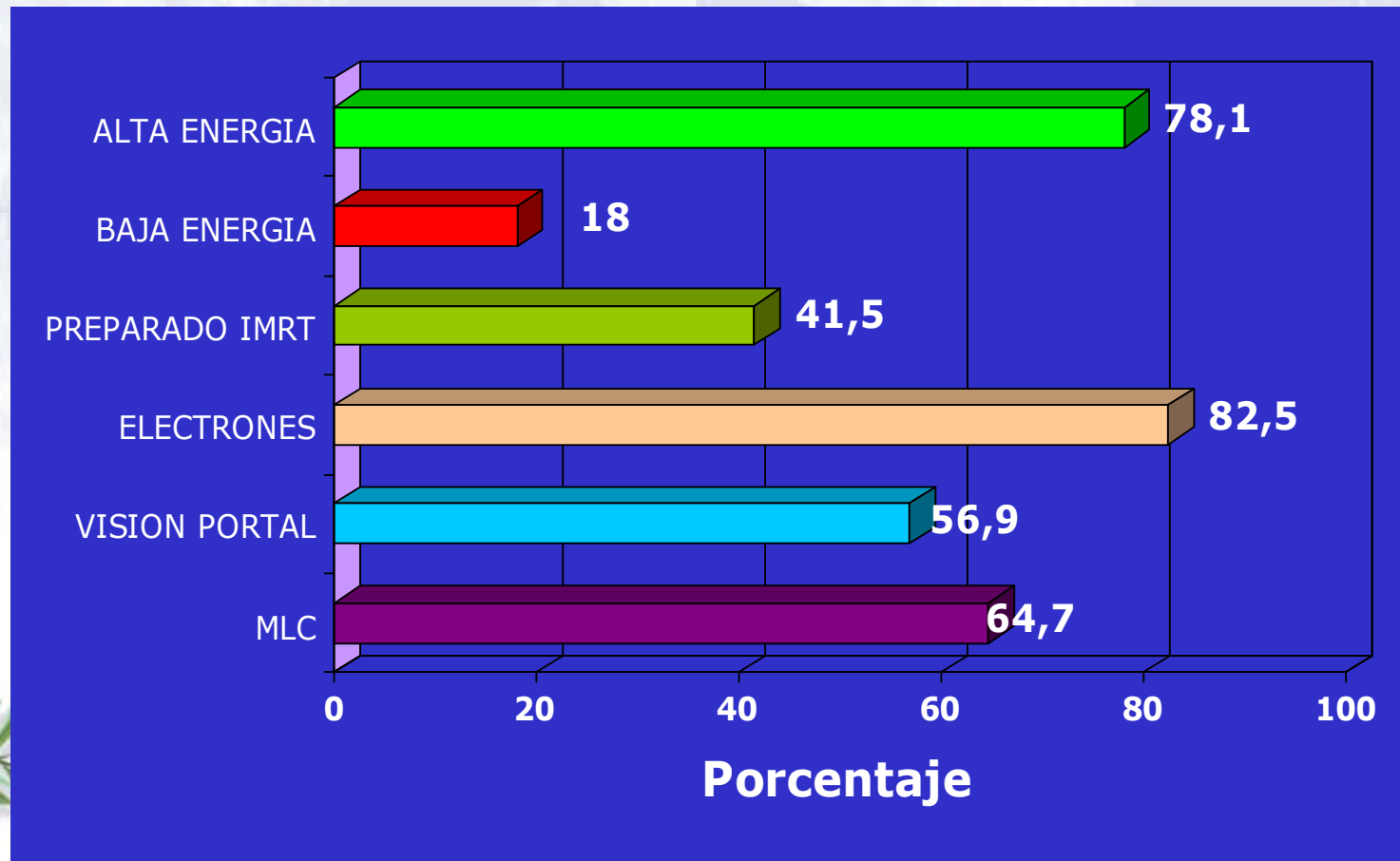


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TECHNOLOGY



CHARACTERISTICS OF LINACs (N = 136)

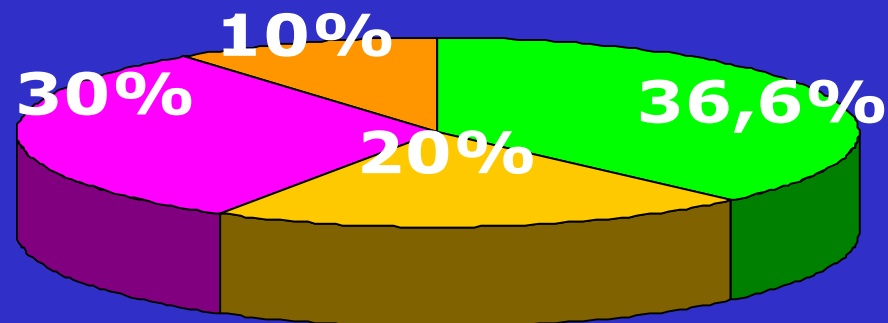


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INTEGRATED NETWORK

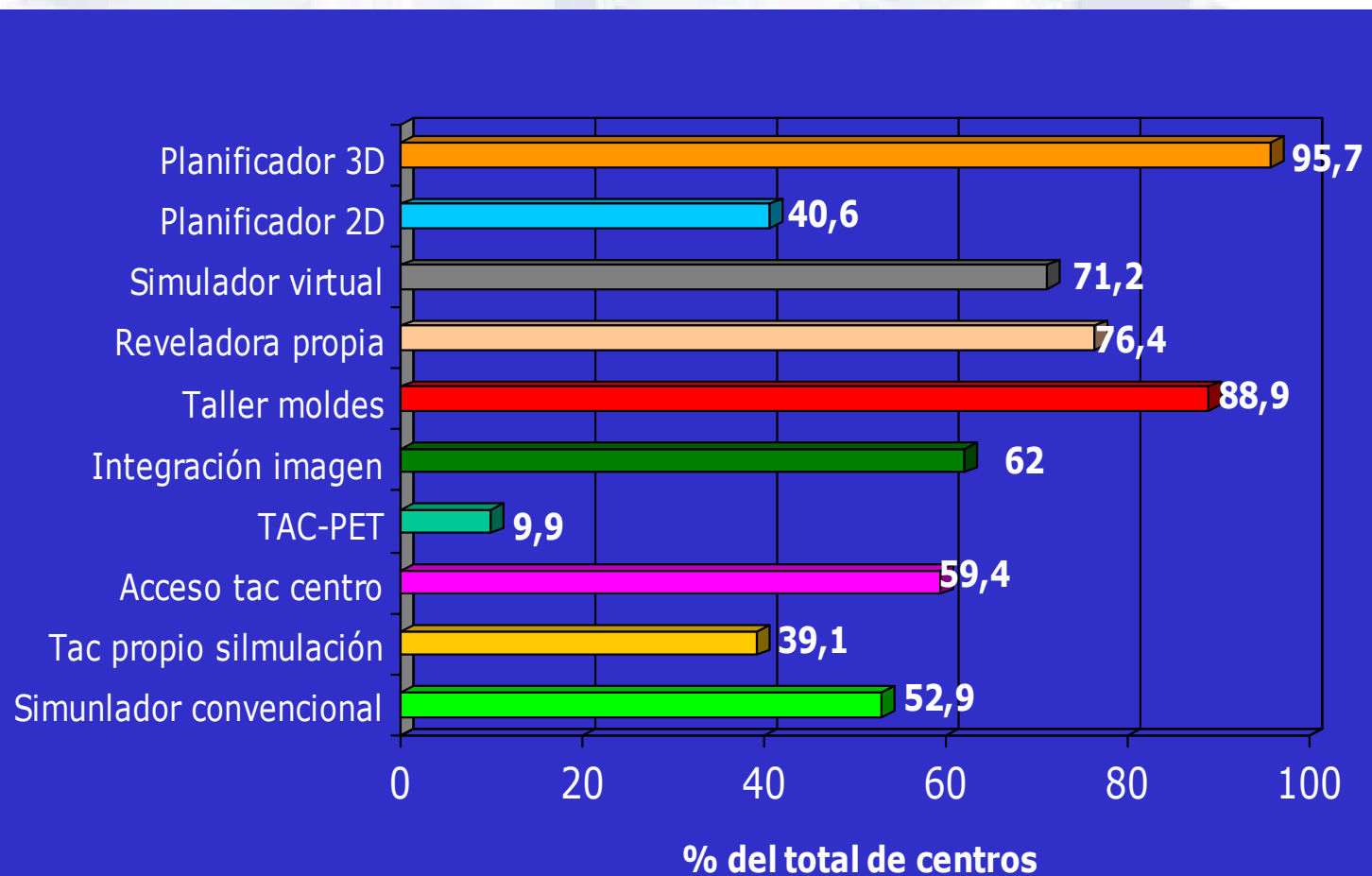
62% of the centres



N:70

- Completa
- Módulo clínico
- Módulo tratamientos/máquina
- Módulo gestión

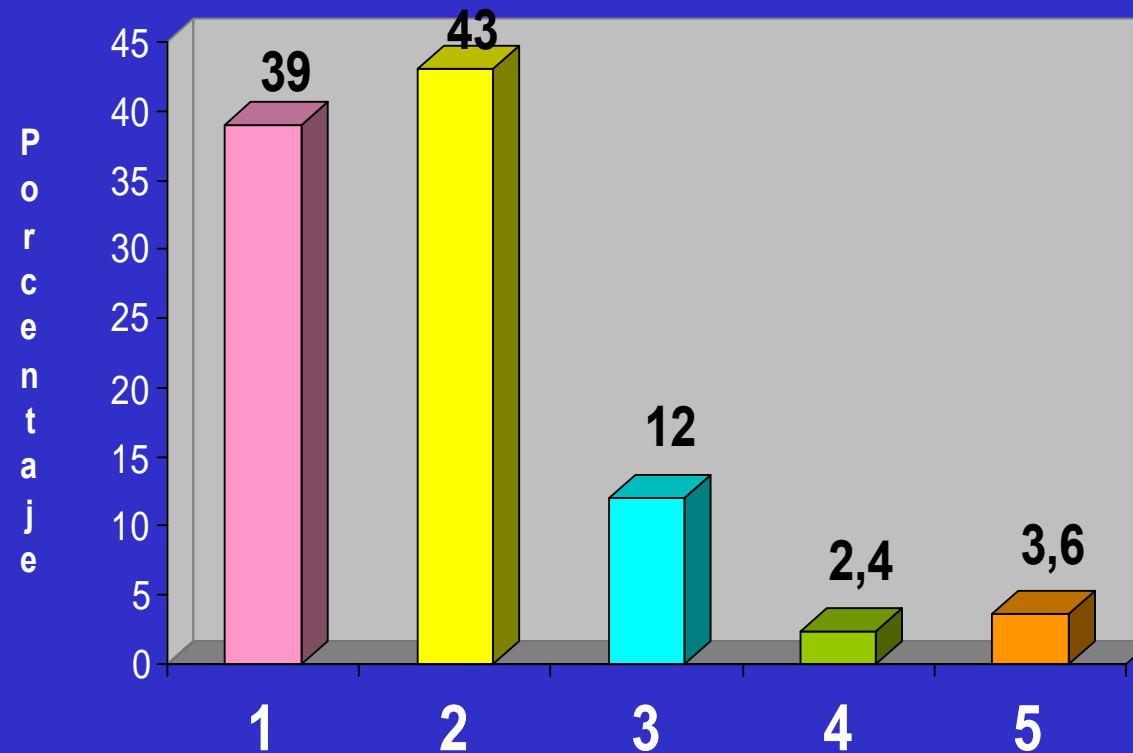
SIMULATION AND DOSIMETRY



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RATE MV UNITS / CENTRE



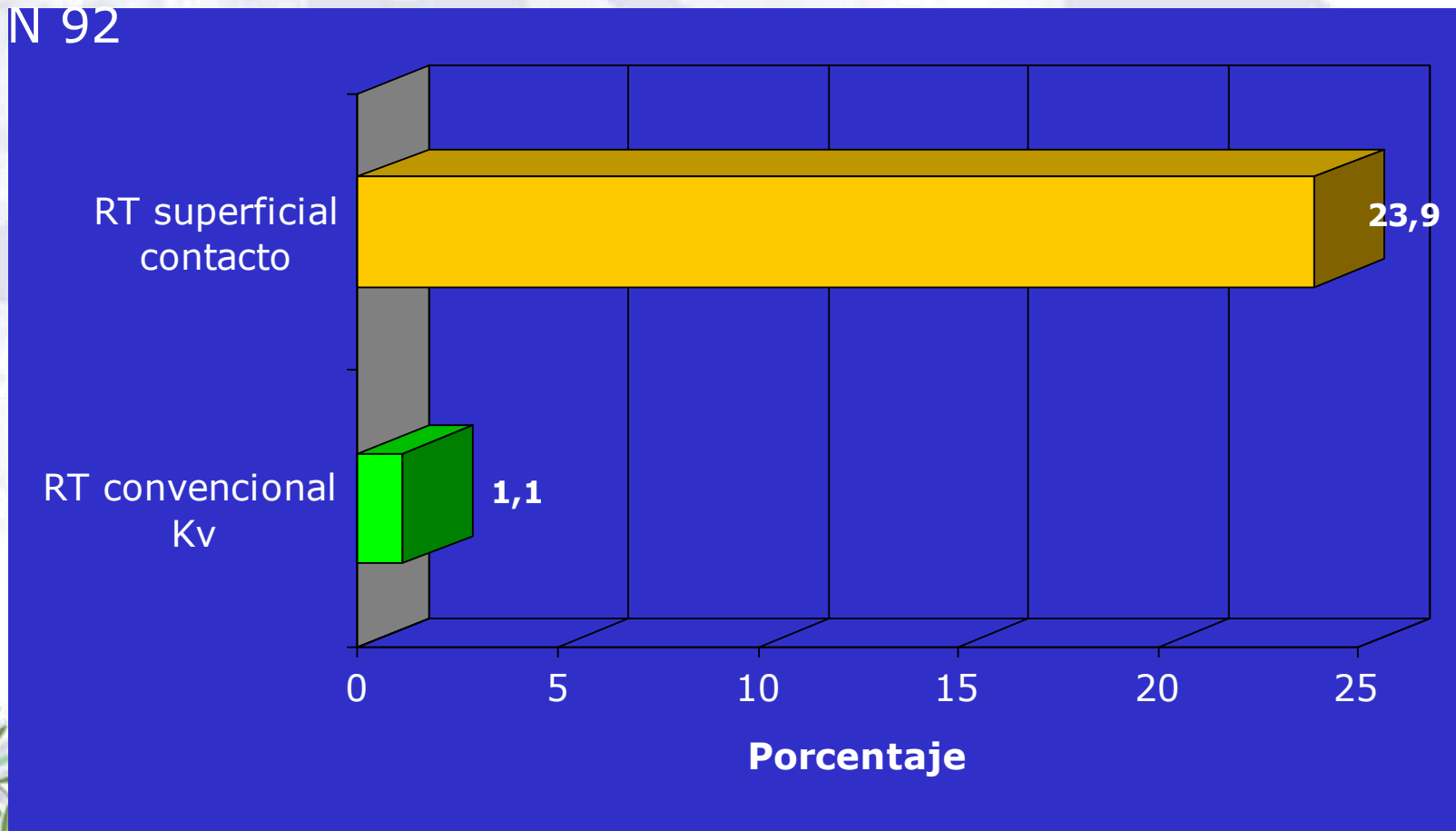
Numero maquinas megavoltaje / centro



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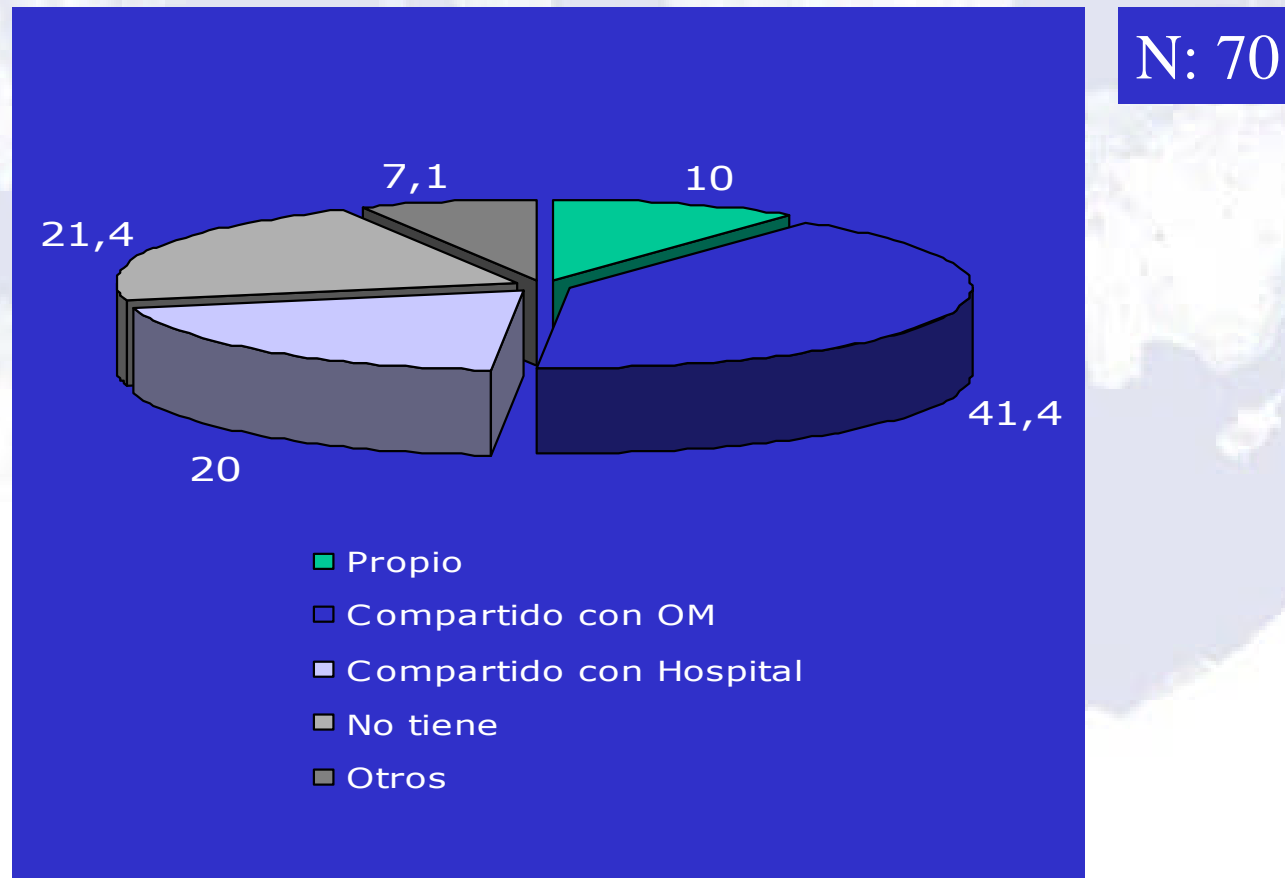
SUPERFICIAL RT / ORTHOVOLTAGE



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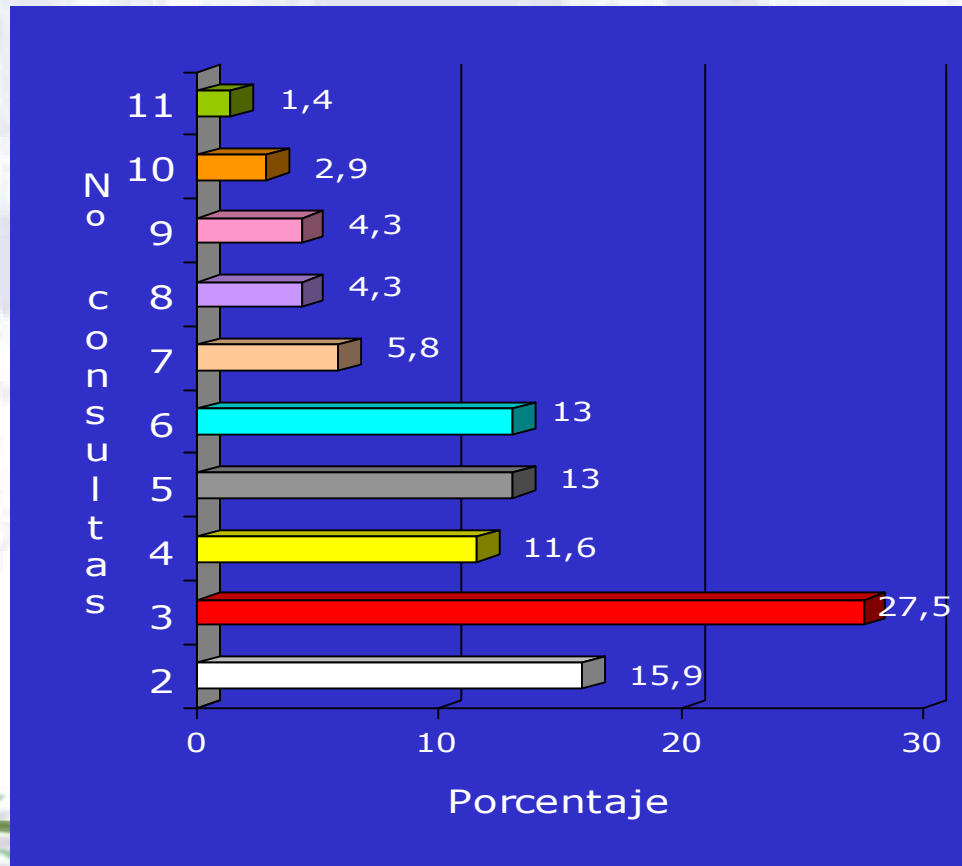
DAY HOSPITAL



CONSULTATIONS

Number of boxes (%)

N: 69

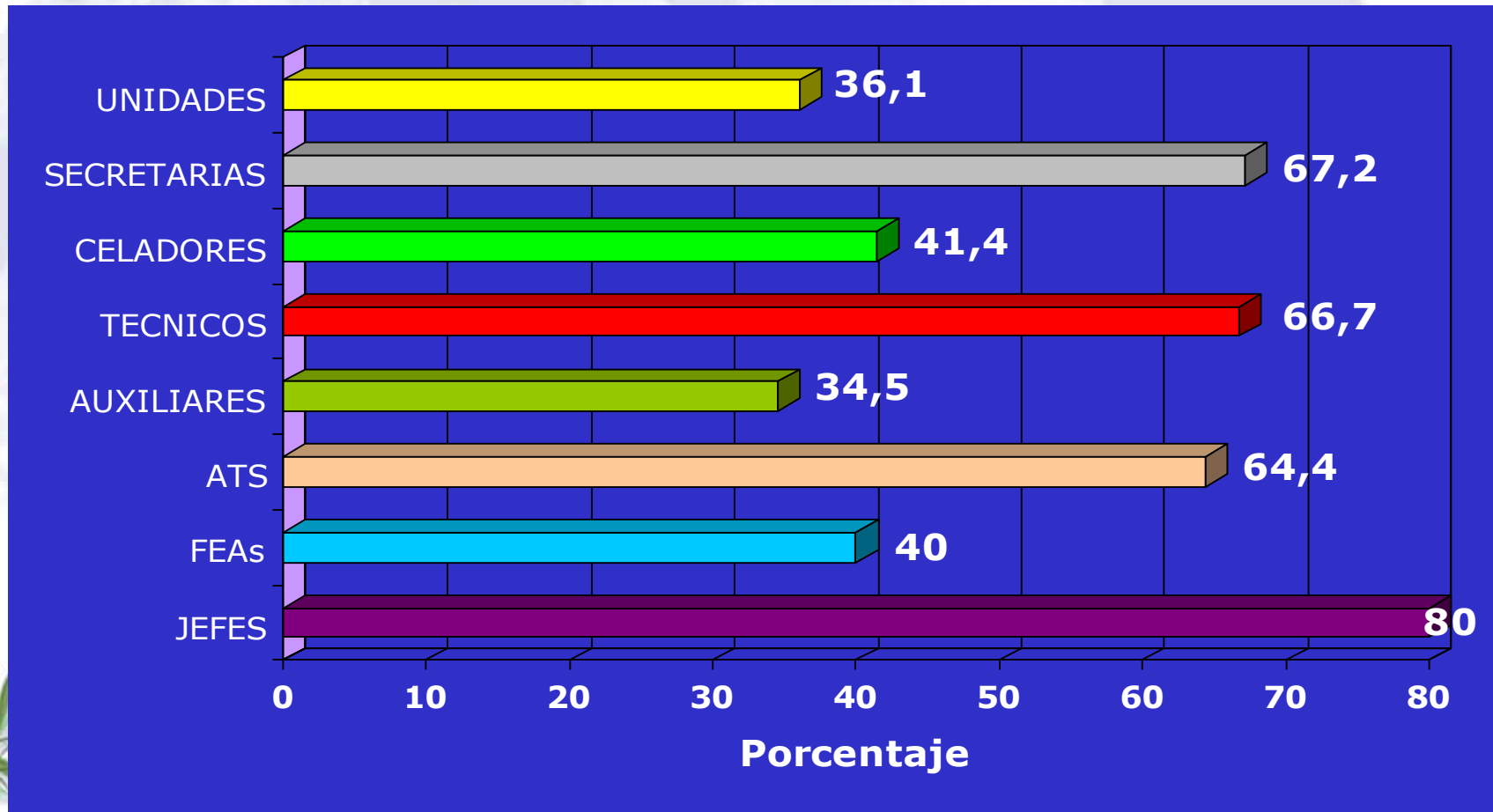


≤ 3 43%

4 - 6 38%

> 6 19%

FULLFILL SEOR GUIDELINES



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USE OF MV UNITS



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USE OF LINACS

N:118 – 71 Units

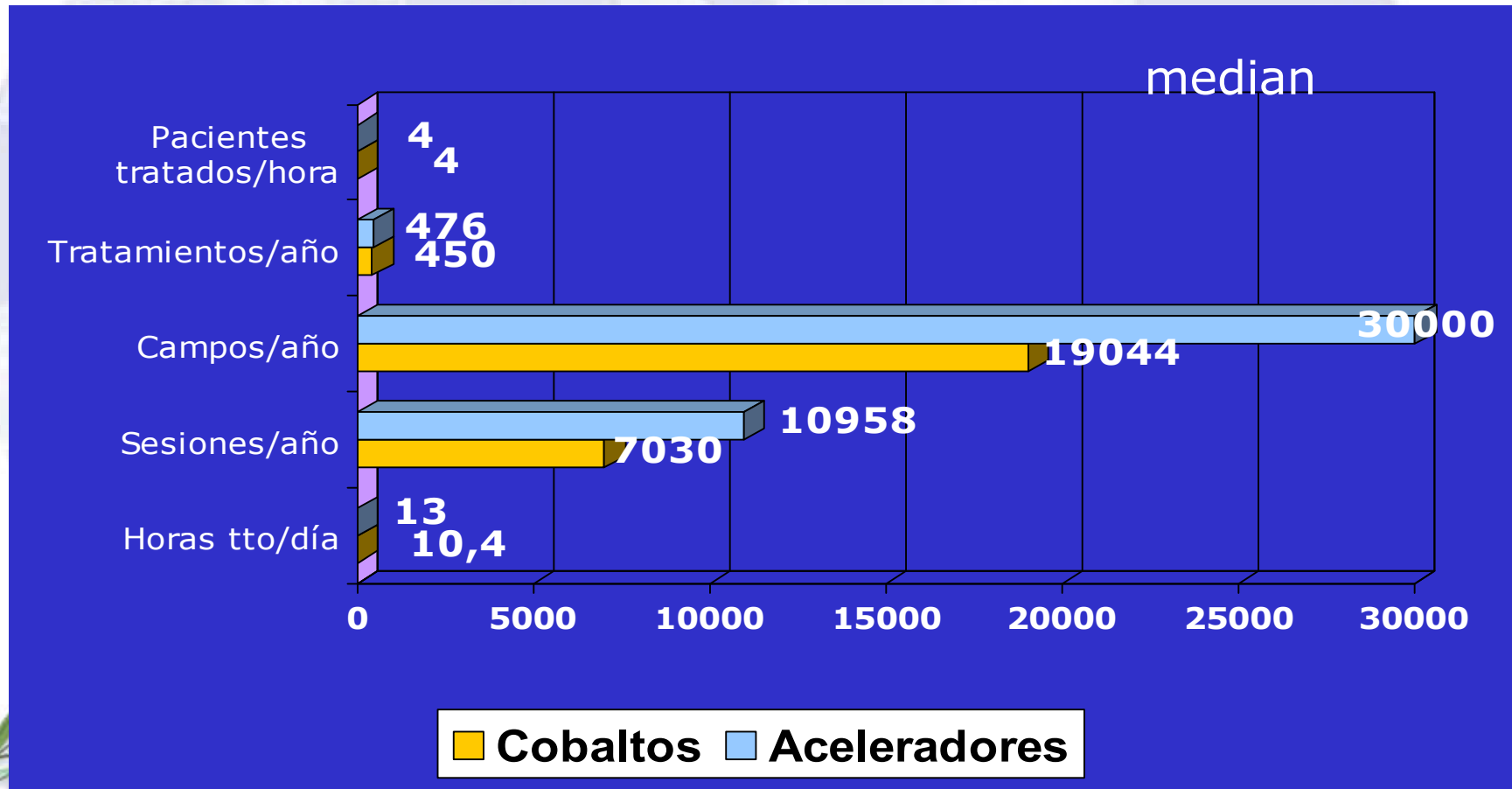
	Mean	SD	Median
Hours / day	11,73	3,72	13
Fractions / year	10751	4728	10958
Fields / year	32588	27736	30000
Treatments / year	574	1118	476
Patients / hour	4,14	1,23	4

USE OF COBALT UNITS

N:24 – 37 Units

	Mean	SD	Median
Hours /day	10,4	3,6	10
Fractions/year	7030	4049	6477
Fields/year	18227	10960	19044
Treatments/year	542	799	450
Patients/hour	3,85	0,63	4

COMPARISON COBALT vs. LINAC



RENDIMIENTO

	Unidades Co 60	A. Lineales
Horas de trabajo / unidad / día	11.48 +- 3.4	11.62 +- 3
Nº de pacientes / unidad / año	473 +- 242	442 +- 212
Nº de sesiones / unidad / año	9752 +- 6530	8723 +- 4231
Nº de campos / unidad / año	26069 +- 17103	26897 +- 14473





HUMAN RESOURCES



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AGE STUDY

93 centres

	Total	Mean	Median	P25	P75
Head of Dept	93	53,6	53	48	58,5
Staff	357	42,5	41	37	47

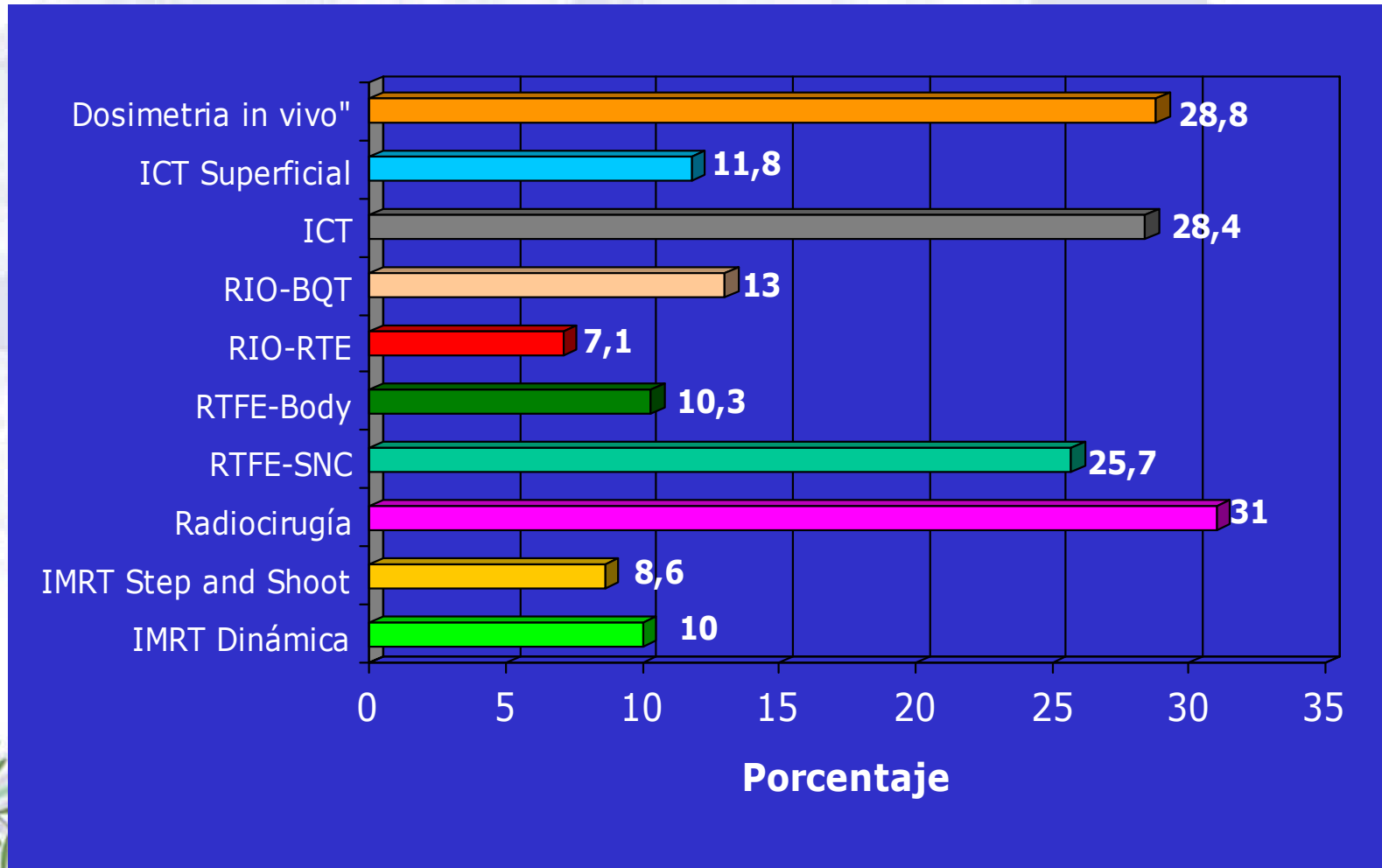


SPECIAL TECHNIQUES



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SPECIAL TECHNIQUES



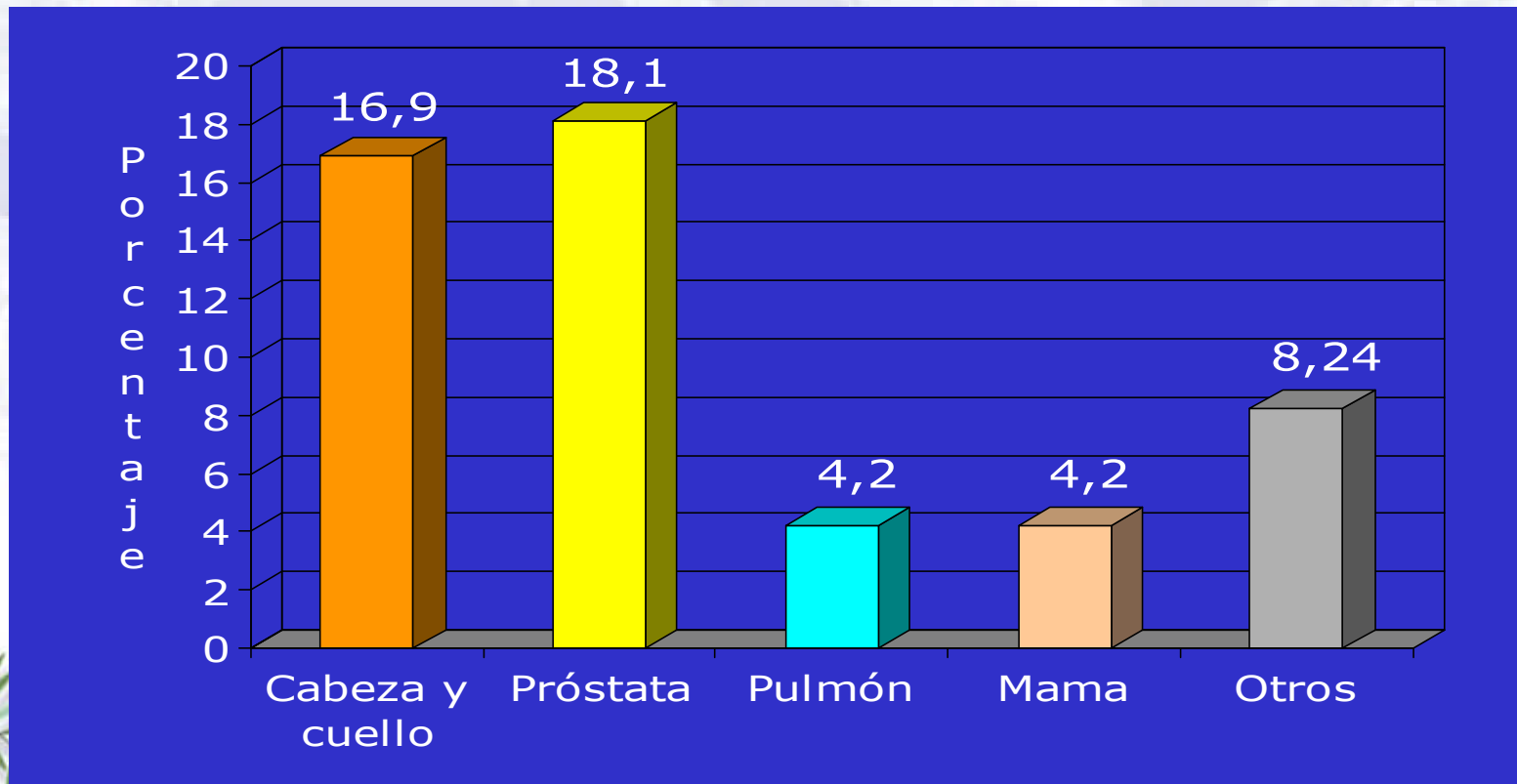
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IMRT: TUMOR SITE

20.8% of the total

N:70

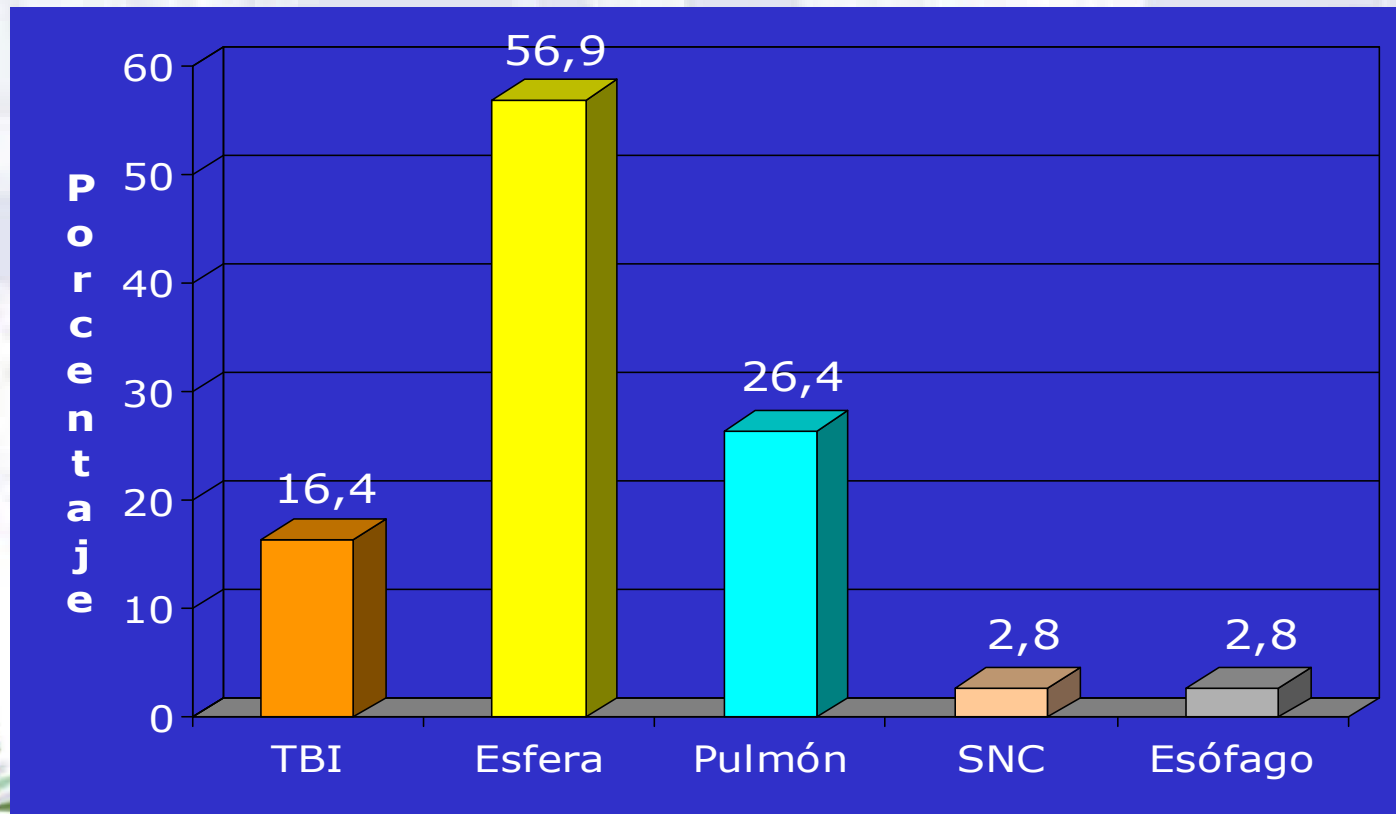


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HYPERFRACTIONATION

66,7% of the total





CLINICAL WORKLOAD



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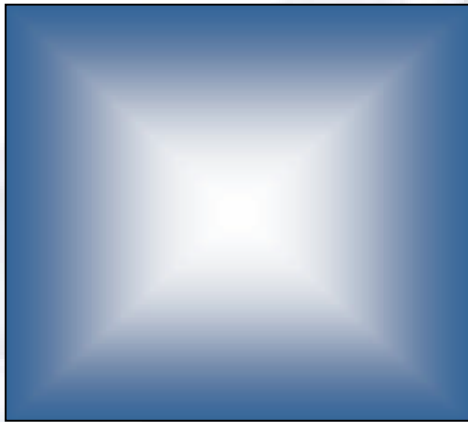
CONSULTATIONS

	MEAN	SD	MEDIAN
First consultation	945	526	852
Follow-up consultation	7132	13372	5066

First consultation	P30	592
	P50	852
	P60	1054
	P80	1297

DELAYS

	Mean	SD	Median
Delay for first consultation	8	5	7
Technical delay	20	15	20



BRACHYTHERAPY



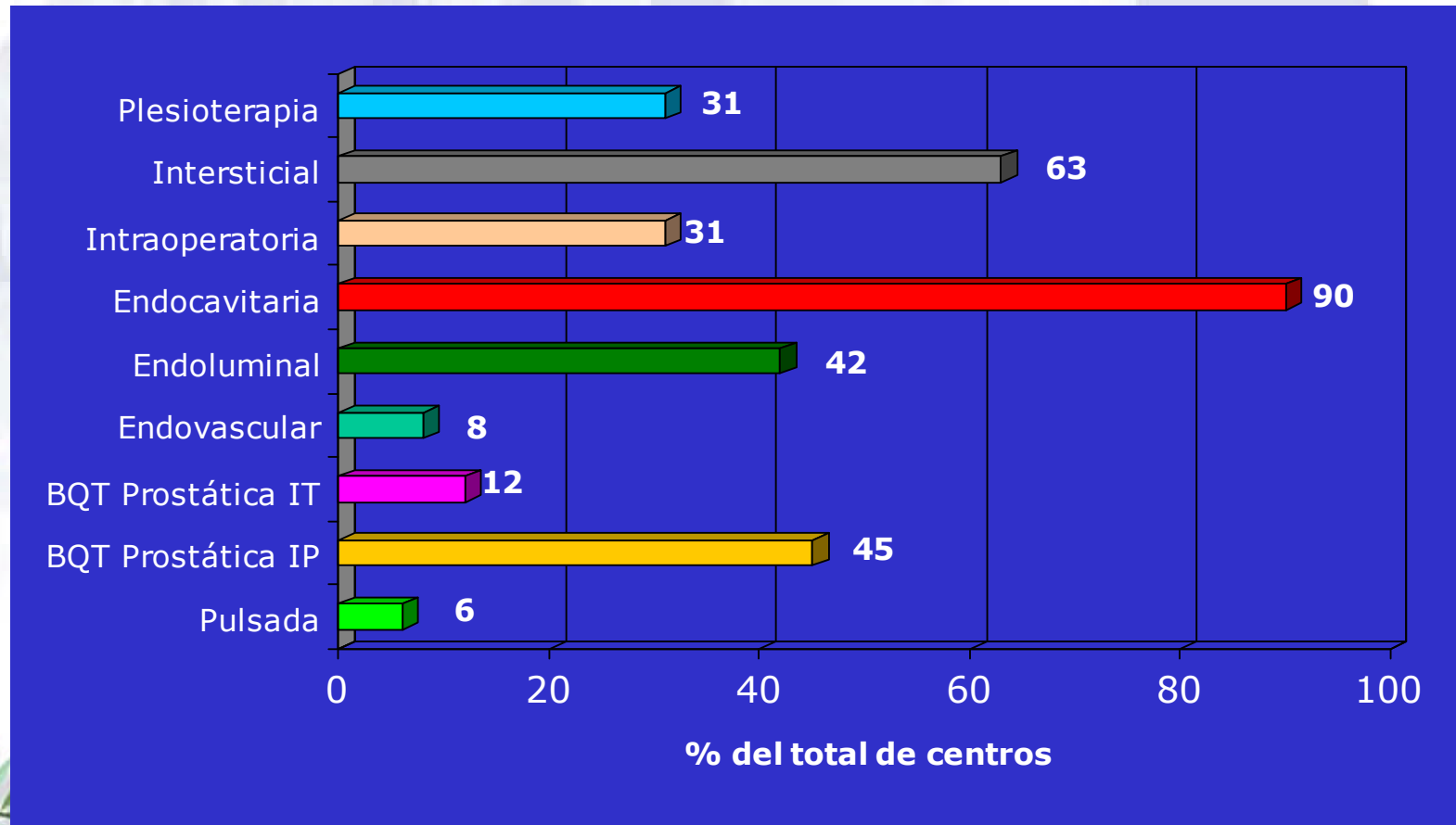
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BRACHYTHERAPY: RESOURCES

Number of BT units in Spain 52 (53,6% of 97 centres)

	Total	%
LDR afterloader	15	28,84
HDR afterloader	32	61,54
Both HDR y LDR	5	9,61
Shielded rooms	32	61,54
Dedicated room for HDR afterloader	28	53,85
Dedicated OR	26	50

BRACHYTHERAPY



BT UNITS: ACTIVITY

N (52)	Tipo	Total	Mean	S
41	Interstitial	834	20	32
40	Prostate: permanent implant	822	21	32
42	Prostate: temporal implant	764	18	91
42	Endoluminal	286	7	21
39	Endocavitary	3582	92	102
42	Endovascular	111	3	15
42	Intraoperative	82	2	5
43	Plesioterapy	2146	50	280
42	Interstitial + endocavitary	331	8	30

43	Total implants LDR	4779	111	292
38	Total implants HDR	5144	135	219

Utilisation of RT (%)

Rate / 100.000 h

Rate of MV units (Mv)

Rate of Radiation oncologists

Rate of Physicians / MV unit

Correlation: irradiation rate / rate of MV units

Correlation: irradiation rate / rate of physicians



USE OF RADIOTHERAPY

Survey: 57 centres / Publicos or Public-Private
Population and use of radiotherapy

Population	➔ 34.465.943 p
Expected incidence	➔ 140.621 new tumours
Treatments (RT)	➔ 57.265 (new and remained)

	Min	Max	Mean	SD
% radiotherapy	20%	185%	44%	24 %
Treatments (RT) / 100.000	80	755	180	99

MV units / 100.000 p

- Complete survey of all spanish facilities
- 97 centres with MV units
- Spanish population January 1st 2004: 43.197.684p

Type of administration	N° Mv	Rate / 100.000	Rate million
Public	121	0,280	2,8
Public + Private	161	0,372	3,7
Total	181	0,419	4,1

RADIATION ONCOLOGISTS

Public and Mixed centres / Population

N		Min	Max	Mean	SD
63	Physicians /100.000 p	0,2	3,5	1,1	0,5
80	Physicians / MV unit	1	5	2,9	0,9
67	Treatments / physician	70	276	162	51