

Project: Support of paediatric oncology and haematology service in Bishkek, Kyrgyzstan.

Contents

Page 2	Lifeline's involvement
Page 3	Project aims
Page 4	DISEASE INCIDENCE
Page 5	2006 incidence by type of disease
Page 6	2006 incidence by main disease
Page 7	2006 incidence by ICCC diagnostic group
Page 8	2006 incidence by residence of patients
Pages 9-11	2006 paediatric Bone Tumours
Page 12	2006 paediatric Acute Myeloid Leukaemia
Page 13	2006 paediatric Nasopharyngeal carcinoma
Page 14	MEDICINES
Page 15	Budget for medicines required in Bishkek department
Page 16	List of drugs required
Page 17	Example of drug cost sheet – Acute Lymphoblastic Leukaemia
Page 18	Example of drug cost sheet – Osteosarcoma
Page 19	CONSTRUCTION OF NEW ONCOLOGY DEPARTMENT
Pages 20-22	Plan for refurbishment of existing building with budget costs
Page 23	RECOMMENDED STAFFING
Page 24	Staffing recommendations
Page 25	EQUIPMENT AND APPARATUS FOR NEW DEPARTMENT
Pages 26-29	Equipment list and budgeted costs
Page 30	Dr Bayzakova's visit to Padova



Lifeline's involvement with Children's Department of Hematology and Oncology in the National Center of Oncology, 92, Akhunbaeva, Bishkek, Kyrgyz Republic

Lifeline has been working with Dr Bayzakova since 2002:

- we provide money for drugs, diagnostic testing, equipment etc; we accept patients for treatment abroad who cannot be treated in Kyrgyzstan; we arrange testing in Italian and UK laboratories for patients. The cost of this is:

	cash donations	cost of patient & tests abroad	total
2004	\$80,000	\$299,728	\$379,728
2005	\$50,000	\$415,668	\$465,668
2006	\$125,000	\$907,357	\$1,032,357

- the number of patient referrals include e mail consultations by our medical advisers:

2002 = 10 patients
2003 = 19 patients
2004 = 19 patients
2005 = 27 patients
2006 = 51 patients

- we are developing plans with Dr Bayzakova for improving her department and its facilities.
- we have arranged visits by Dr Emanuela Frascella and Dr Judith Kingston (Lifeline medical adviser) to assess some of the problems relating to the diagnosis and management of the paediatric oncology patients in Kyrgyzstan and to explore how best Lifeline can help the children referred to Dr Damira Bayzakova's unit. In 2006 Dr Bayzakova visited Padova. Prof. Giuseppe Basso kindly said he is ready to support the project by donating surplus equipment and provide training for a technician/doctor. In early 2007 the first equipment, a flow cytometer is being delivered to Bishkek.



Project aims

We have agreed the following requirements and priorities with Dr Bayzakova:

1. **Development of hospital facilities** suitable for the number of new referrals plus the children on therapy and follow-up, including expanded ward facilities for in-patients, parents accommodation and a day hospital with clinic rooms for out-patient consultations and day-beds for children undergoing procedures and day case chemotherapy.

2. **Trained staff** (doctors, nurses including clinical nurse specialists in Paediatric Oncology, physical therapists, play and educational staff). We are investigating whether it is possible to arrange for a Western doctor and a paediatric oncology nurse specialist to work in Bishkek on a temporary basis. Included in this document is our Staffing Recommendations.

3. **Laboratory** back up for a department of this size and training for laboratory staff. There is a need to improve diagnostic criteria by introducing immunohistochemical methods to confirm morphological histological diagnoses so that appropriate treatment is given.

4. **Clinical:** drugs for treatment and supportive care of children to modern protocols and to western standards. At the moment there is no government funding for drugs. Some of the medical priorities are:

- reduction of hepatitis through improved procedures to prevent nosocomial infection.
- introduction of HD methotrexate enabling full BFM protocols to be used.
- Hodgkins Disease – improved diagnosis and radiotherapy.
- short and long-term follow-up control of patients returning after Stem Cell Transplant in Italy.
- establishment of follow-up policies for patients treated in Bishkek.
- assess feasibility of introducing treatments that are not currently available in Kyrgyzstan – e.g. limb salvage therapy for children with bone tumours, MIBG therapy for neuroblastoma, plaque or external beam radiotherapy for salvage of relapsed retinoblastoma, immunosuppressive treatment for aplastic anaemia.

5. **Research** to investigate the wide variations in disease incidence and the disturbingly high incidence in some regions. Establishment of a reliable disease registry.

6. **Information for patients' families** to encourage presentation of children for treatment and reduce withdrawals from treatment.

7. **Equipment** for the clinical department and laboratories.

8. **Improvements to ancillary services** – surgical, introduction of central venous catheters, imaging, etc.

9. **Improvements in blood transfusion** service, including establishment of volunteer donor register, to reduce incidence of transfusion-related hepatitis.

For the future:

10. **Improvements in medical education** of doctors and nurses. Exchange of information with Padova Medical University on syllabi and improvements to medical education.

11. **Stem cell transplant** facilities, first autologous later allogeneic.

13. **Stem cell donor registry** including establishment of volunteer donor system.

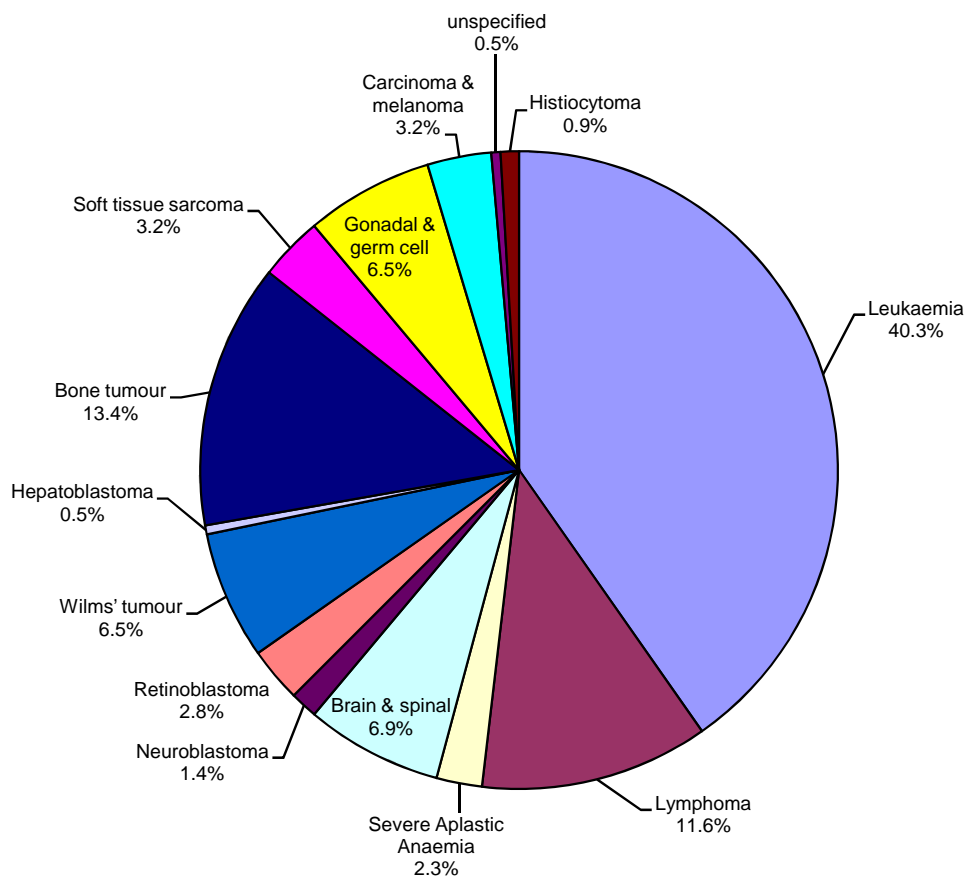


DISEASE INCIDENCE

Disease incidence is expressed by region and, as in the past, it is noticeable that some regions have markedly higher incidences than other areas of the Kyrgyz Republic and international norms.



2006 Paediatric patients treated in Bishkek Kyrgyz Republic



Patients treated in the Children's Department of Hematology/Oncology
in the National Center of Oncology, Bishkek, Kyrgyzstan

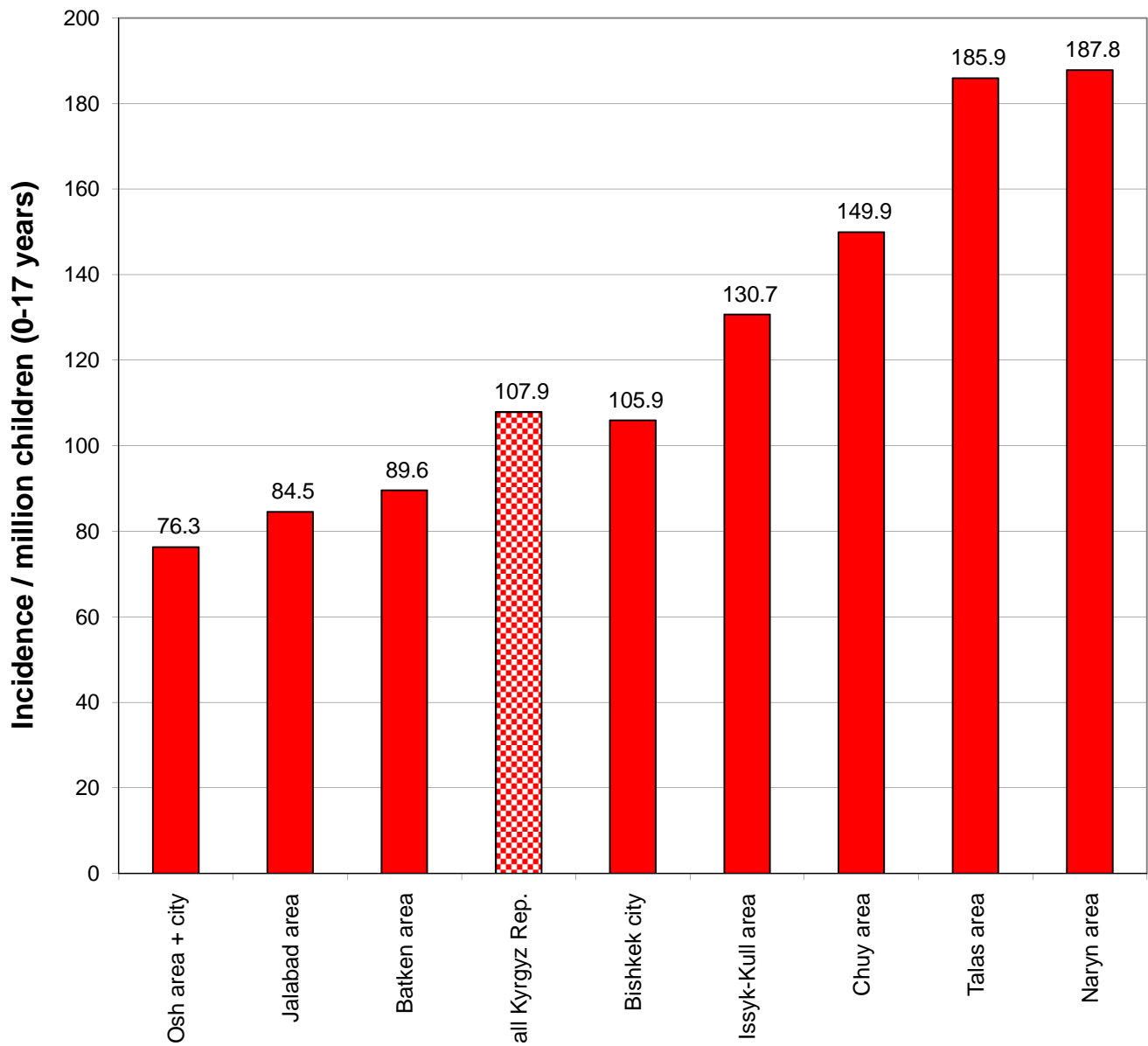
Diagnostic group (ICCC)	2006 Bishkek patient numbers
I Leukaemias	87
(a) ALL	57
(b) ANLL	26
(c) CML	4
II Lymphomas	25
(a) Hodgkin's disease	13
(b,c) NHL	12
Severe Aplastic Anaemia	5
III Brain & spinal	15
(c) PNET	2
(f) Unspecified	13
IV Sympathetic nervous	3
(a) Neuroblastoma	3
V Retinoblastoma	6
VI Kidney tumours	14
(a) Wilms' tumour etc	14
VII Liver tumours	1
(a) Hepatoblastoma	1
VIII Bone tumours	29
(a) Osteosarcoma	23
(c) Ewing's sarcoma	5
bde. Other (Chondrosarcoma)	1
IX Soft tissue sarcomas	7
(a) Rhabdomyosarcoma	3
(b) Fibrosarcoma	3
(c,d) Other specified Malignant Mesenchimoma	1
X Gonadal & germ cell	14
(b) Other extragonadal germ cell	5
(c) Gonadal germ cell	6
(d,e) Other & unspecified	3
XI Carcinoma & melanoma	7
(c) Nasopharyngeal carcinoma	6
(d) Malignant melanoma	1
XII Other & unspecified	1
Histiocytoma/Histiocytosis	2
2006 total patients	216

Patients treated in the Children's Department of Hematology/Oncology in the National Center of Oncology, Bishkek, Kyrgyzstan

*We have extrapolated from incidence rates in Great Britain to estimate the number of cases expected in Kyrgyzstan.

Diagnostic group (ICCC)	2003 pt nos.	2004 pt nos.	2005 Bishkek patient nos.	2005 total Kg patient nos.	2006 Bishkek patient nos.	*Expected Kg incidence	2006 actual incidence	
							More than expected	Less than expected
I Leukaemias								
(a) ALL	47	58	43	54	57	69.4		12.4
(b) ANLL	8	17	25	57	26	12.8	13.2	
(c) CML	1	3	0	16	4	1.8	2.2	
(d,e) Other & unspecified	0	0	0	0	0	1.4		1.4
II Lymphomas								
(a) Hodgkin's disease	12	10	13	16	13	8.8	4.2	
(b,c) NHL	13	17	26	30	12	13.8		1.8
(d,e) Other & unspecified	0	0	0	0	0	0.6		0.6
III Brain & spinal								
(a) Ependymoma & choroid plexus	5	2	12	12	0	6.1		6.1
(b) Astrocytoma	0	0	0	0	0	25.1		25.1
(c) PNET	8	14	18	18	2	12.2		10.2
(d) Other glioma	0	0	0	0	0	7.7		7.7
(e) Other specified	0	0	0	0	0	5.7		5.7
(f) Unspecified	0	3	24	42	13	3.5	9.5	
IV Sympathetic nervous								
(a) Neuroblastoma	6	5	5	8	3	15.0		12.0
(b) Other					0	0.2		0.2
V Retinoblastoma	9	7	6	8	6	7.4		1.4
VI Kidney tumours								
(a) Wilms' tumour etc	9	7	6	8	14	12.4	1.6	
(b) Renal carcinomas	0	0			0	0.2		0.2
(c) Other & unspecified	0	0			0	0.0		0.0
VII Liver tumours								
(a) Hepatoblastoma	2	2	4	7	1	2.0		1.0
(b) Hepatic carcinoma	0	0			0	0.6		0.6
VIII Bone tumours								
(a) Osteosarcoma	8	13	18	23	23	5.1	17.9	
(c) Ewing's sarcoma	1	0	4	7	5	3.9	1.1	
bde. Other (Chondrosarcoma)	2	3	2	6	1	0.8	0.2	
IX Soft tissue sarcomas								
(a) Rhabdomyosarcoma	0	2	5	5	3	10.8		7.8
(b) Fibrosarcoma	0	0			3	2.0	1.0	
(c,d) Other specified	2	1	1	1	1	4.5		3.5
<i>IXc,d Hemangioperizitoma</i>	0	1						
<i>IXc,d Leimiosarcoma</i>	1	0						
<i>IXc,d Malig.Mesenchimoma</i>	1	0			1			
(e) Unspecified	0	0			0	1.2		1.2
X Gonadal & germ cell								
(a) Intra-cranial/intra-spinal germ cell	0	0			0	2.4		2.4
(b) Other extragonadal germ cell	0	0			5	2.2	2.8	
(c) Gonadal germ cell	4	9	9	16	6	3.5	2.5	
<i>Teratoblastoma</i>	0	2			2			
<i>Dysgerminoma</i>	4	7			4			
(d,e) Other & unspecified	2	3	5	8	3	0.4	2.6	
<i>Embryonal cancer</i>	2	3						
XI Carcinoma & melanoma								
(a) Adrenocortical carcinoma	0	0			0	0.2		0.2
(b) Thyroid carcinoma	0	2	2	4	0	1.0	1.0	
(c) Nasopharyngeal carcinoma	3	4	5	7	6	0.4	5.6	
(d) Malignant melanoma	0	1	1	2	1	2.8		1.8
(e) Skin carcinoma	0	0			0	1.4		1.4
(f) Other carcinoma	0	0			0	2.0		2.0
XII Other & unspecified	0	0	0	6	1	1.8		0.8
Aplastic anaemia					5			
	2003	2004	2005 Bishkek	2005 total Kg	2006 Bishkek	2006 actual incidence		
annual totals	146	183	234	361	214	More than expected	Less than expected	
totals exclude Histiocytoma/Histiocytosis	4	0	1		2	64.4	108.1	

2006 Paediatric Cancer incidence Kyrgyz Republic

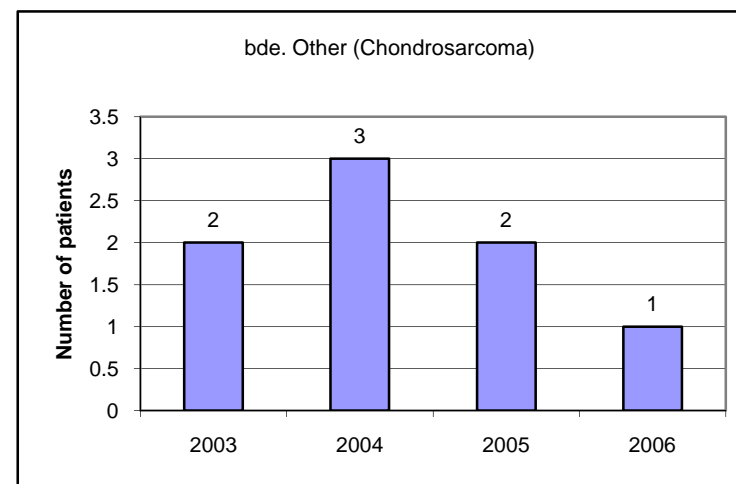
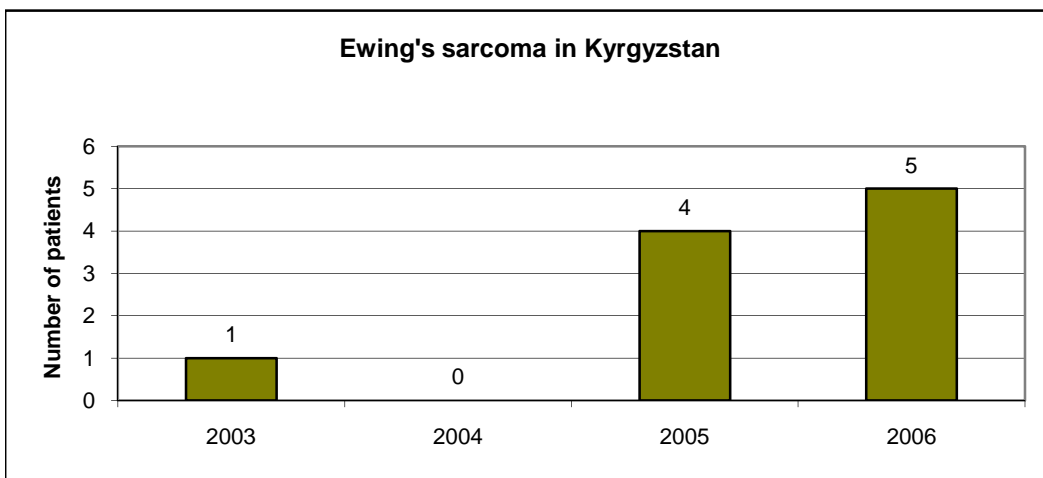
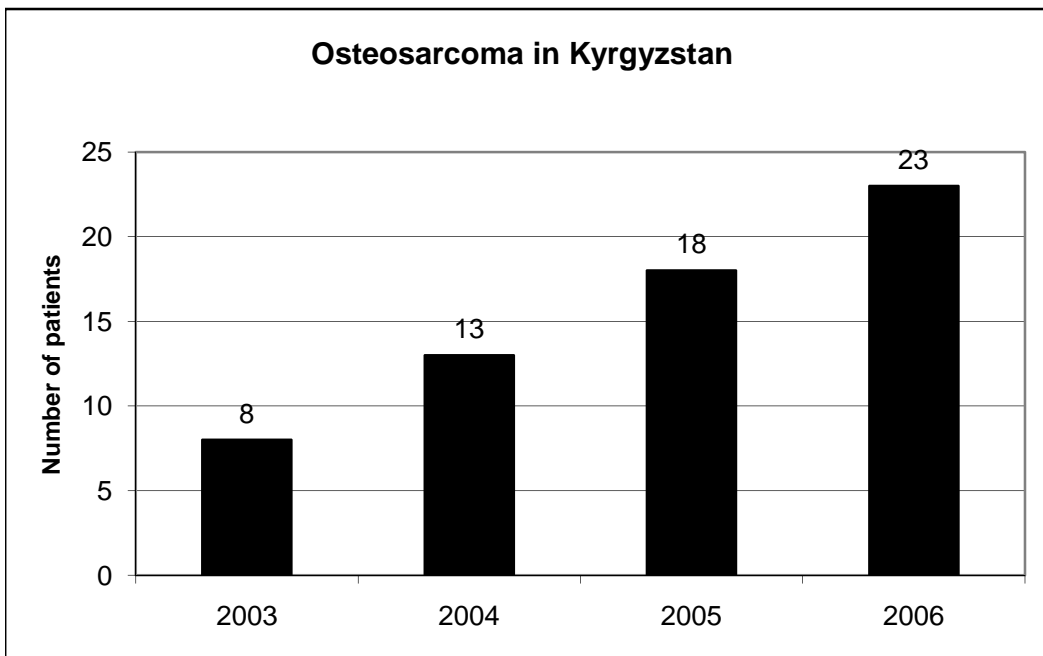


REGIONS	2006 incidence / 1m children	No.patients 0-17 years
Osh area + city	76.3	42
Jalabad area	84.5	35
Batken area	89.6	16
all Kyrgyz Rep.	107.9	212
Bishkek city	105.9	21
Issyk-Kull area	130.7	22
Chuy area	149.9	37
Talas area	185.9	17
Naryn area	187.8	22

Bone tumours in Kyrgyz Republic: 2006

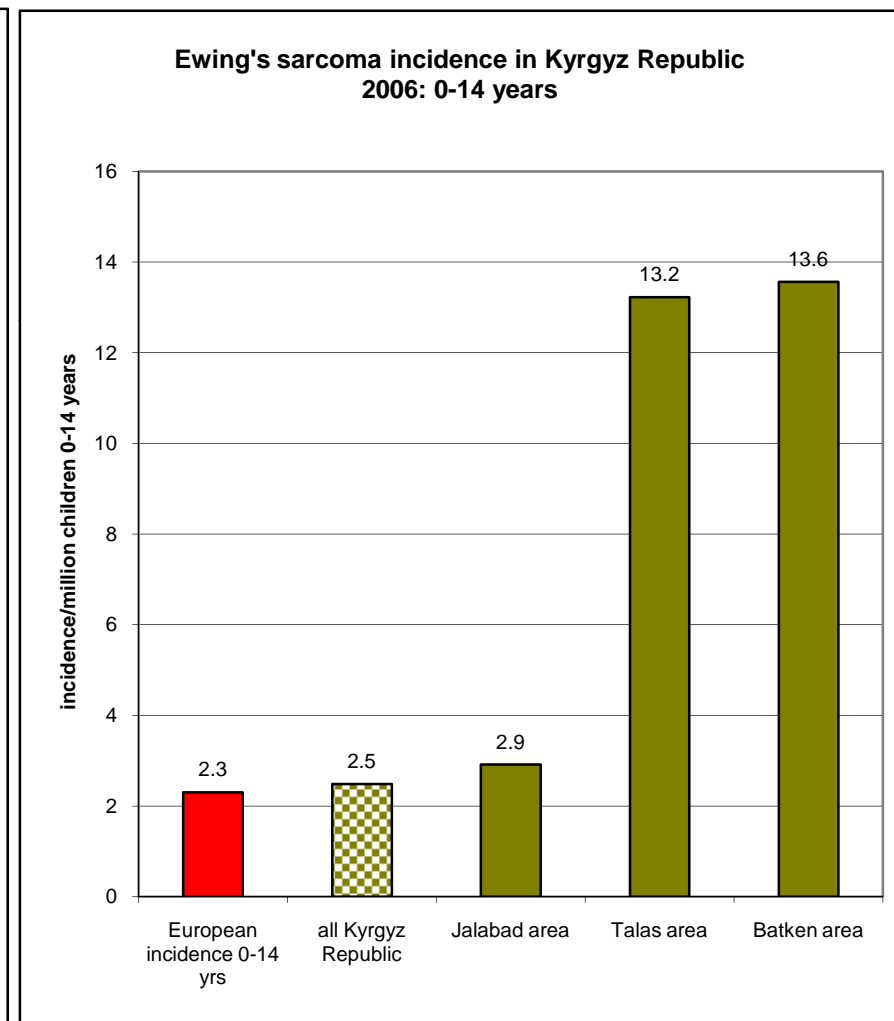
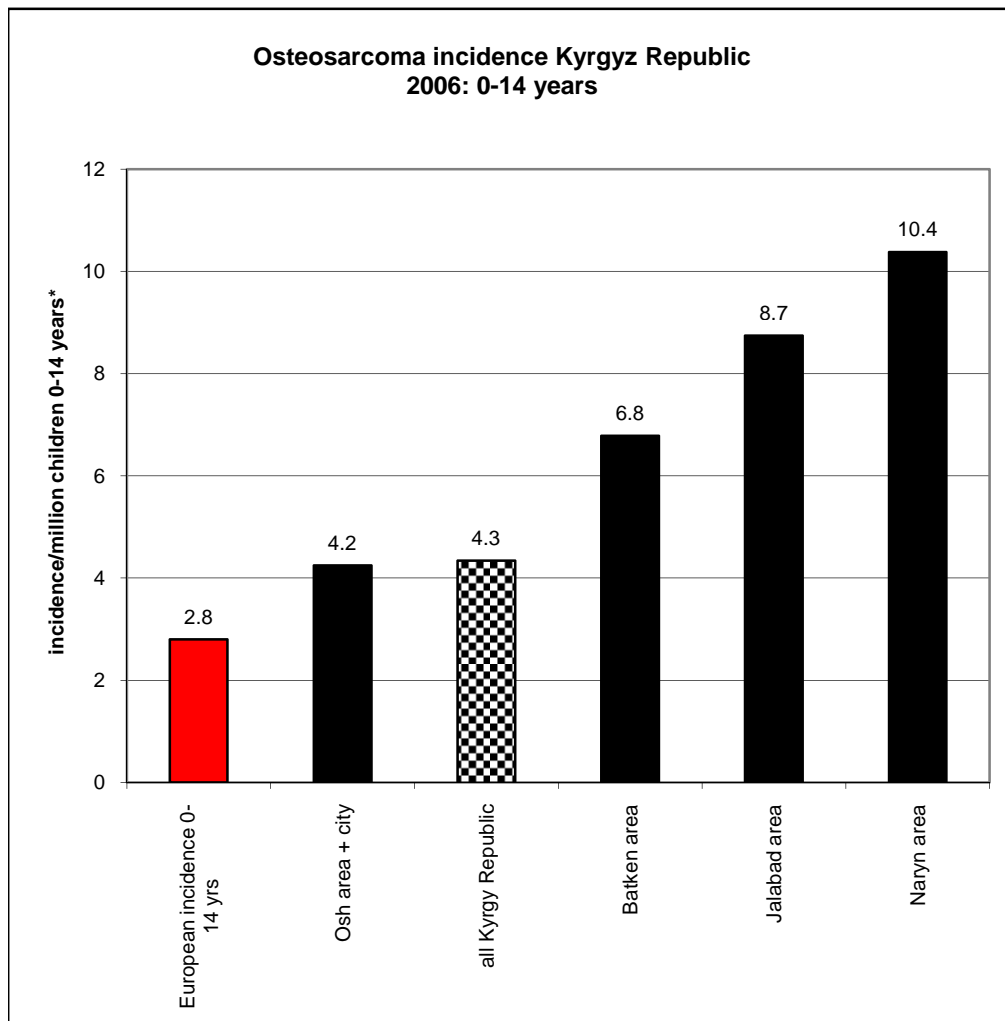
Osteosarcoma: In 2006 of 23 newly diagnosed patients 9/23 (39%) died by end 2006; plus one further patient refused treatment. 2/23 (9%) were in remission
11/23 (48%) patients were continuing chemotherapy at the end of 2006.

Ewing's sarcoma: of 5 patients 1 (20%) died, 1 (20%) did not respond and 3 (60%) were continuing chemotherapy

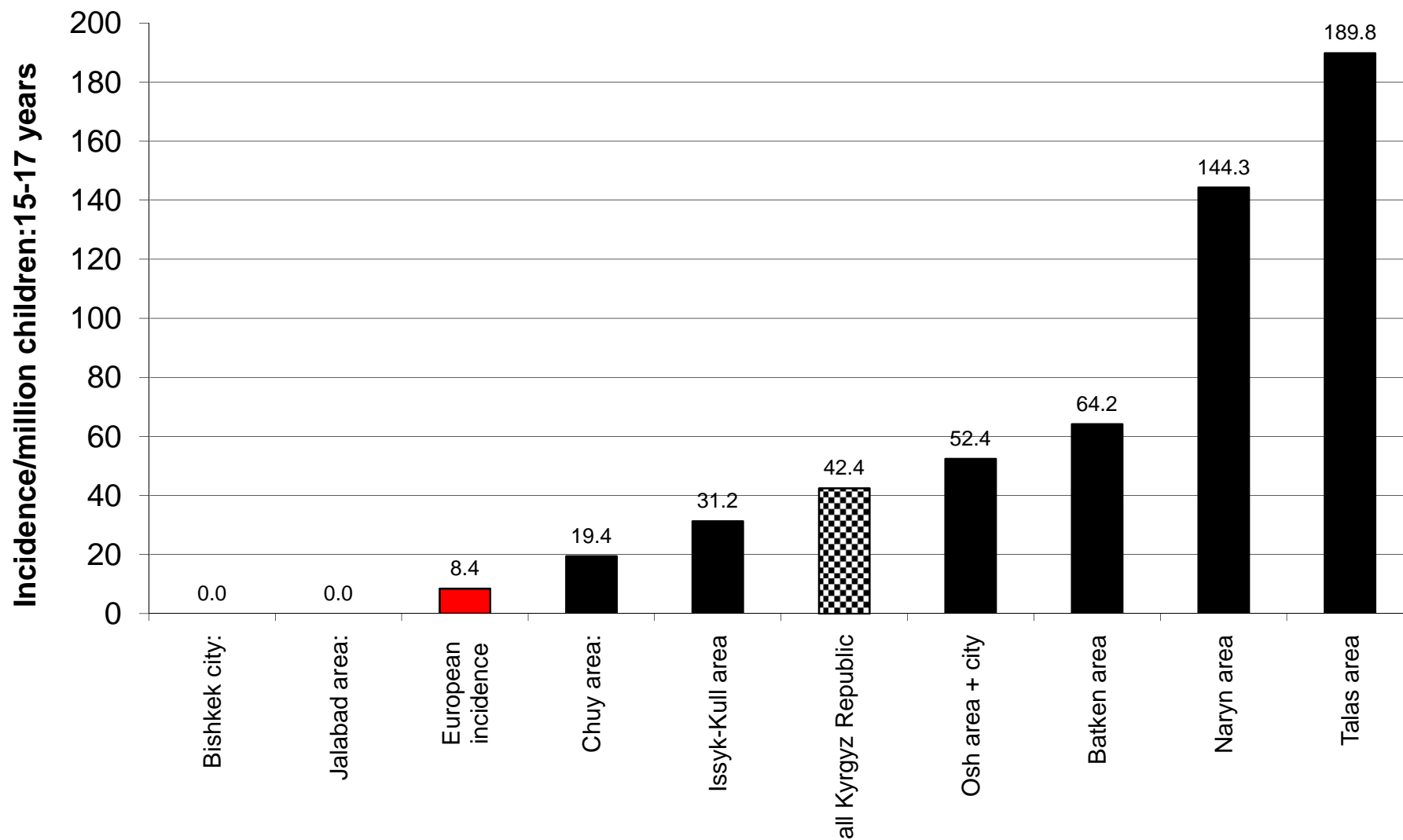


Incidence rates in European data are expressed as incidence per million children in the age groups 0-14 years and 15-19 years. Because we only have Kyrgyz population data for 0-14 years and 15-17 years we have excluded patients older than 17 years, but used the European 15-19 years incidence rates/million for the Kyrgyz 15-17 years age group.

Source of European data: *Bone tumours in European children and adolescents, 1978–1997. Report from the Automated Childhood Cancer Information System project*
 C.A. Stillera, S.S. Bielackb,c, G. Jundtd, E. Steliarova-Fouchere *European Journal of Cancer* 42(2006) pages 2124–2135

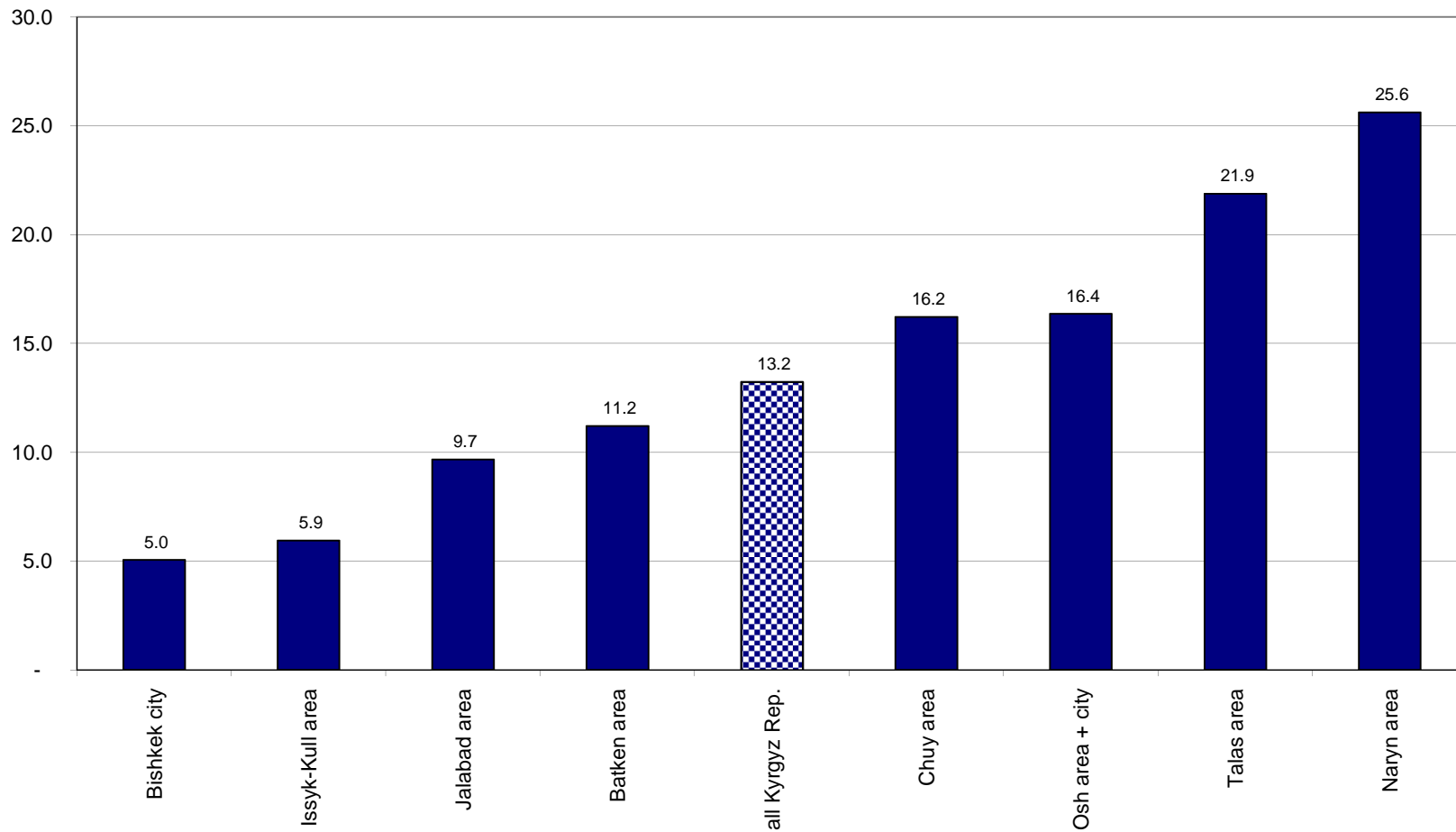


Osteosarcoma in Kyrgyz Republic 2006: 15-17 years

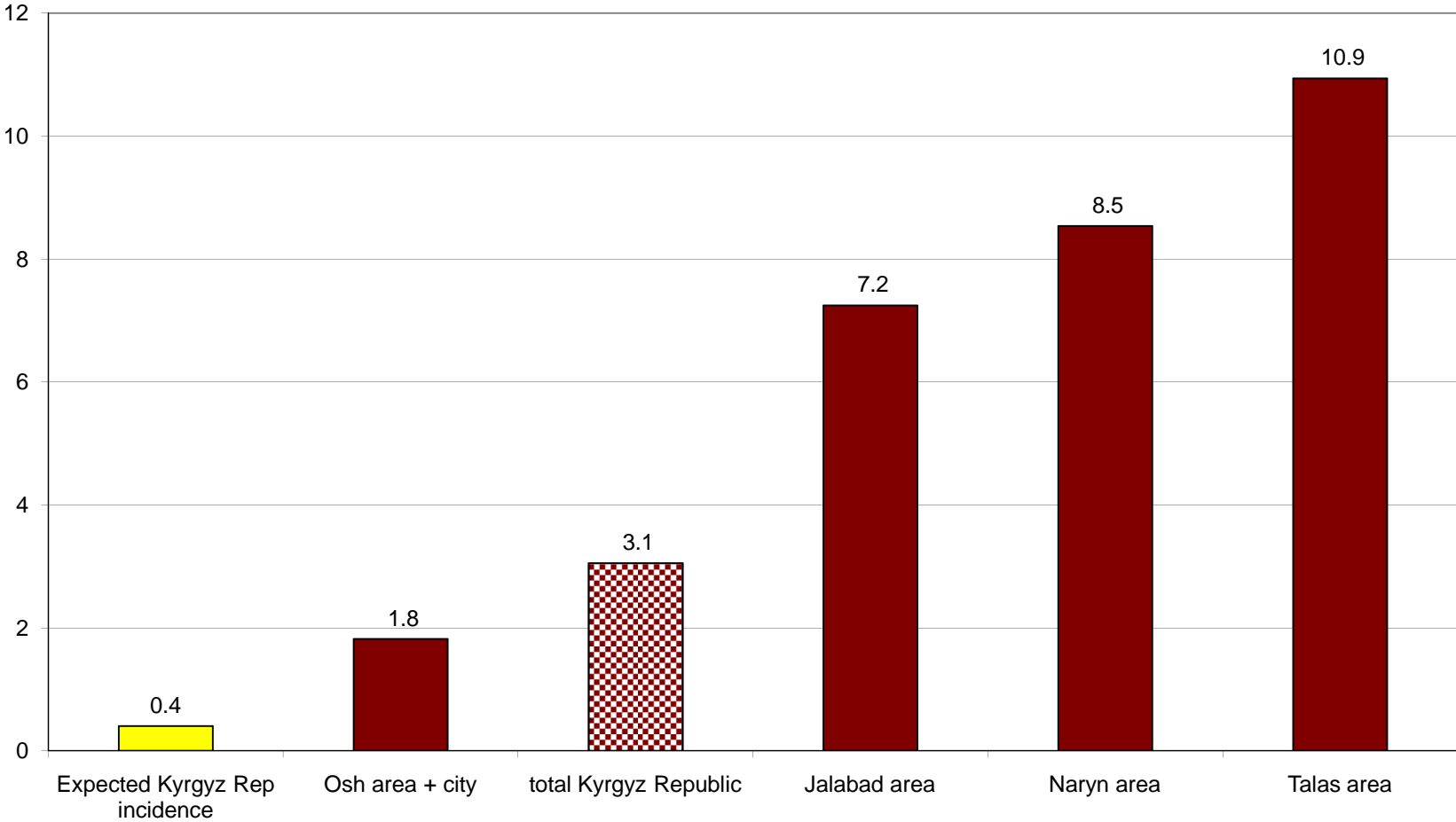


2006 Acute Myeloid Leukaemia incidence Kyrgyz Republic

2006 incidence/million children 0-17 years



2006 incidence of Nasopharyngeal carcinoma in Kyrgyz Republic (0-17 years)



MEDICINES

Page 15 is a budget for the medicines needed to treat the 2006 patients to modern Western protocols; such protocols are necessary if survival rates are to be improved. Page 16 summarises the actual drugs and amounts that are needed for the department. We have prepared detailed drug dosing and cost sheets for all diseases, and pages 17 and 18 are examples of two diseases representing the largest cost elements.



COSTS OF CYTOTOXICS, ANTIBIOTICS & ANTIFUNGALS (excluding transfusions, blood tests, radiology & surgery)

*using GB incidence rates to estimate the number of cases expected in Kyrgyzstan

euro converted at 1.45 = £1

	2003	2004	2005	2006	Expected Kyrgyz *incidence	cost/patient drugs to western treatment protocols	total drugs required 2006 Bishkek dept
Diagnostic group (ICCC)	patient nos.	patient nos.	patient nos.	patient nos.			
I Leukaemias							
(a) ALL	47	58	43	57	69.4	€ 16,400	€ 934,800
(b) ANLL	8	17	25	26	12.8	€ 13,150	€ 341,900
(c) CML	1	3	0	4	1.8	€ 14	€ 56
(d,e) Other & unspecified	0	0	0	0	1.4		€ 0
II Lymphomas							
(a) Hodgkin's disease	12	10	13	13	8.8	€ 2,470	€ 32,110
(b,c) NHL T	13	17	26	9	13.8	€ 11,602	€ 104,418
(b,c) NHL B				3		€ 5,102	€ 15,306
(d,e) Other & unspecified	0	0	0	0	0.6		€ 0
III Brain & spinal							
(a) Ependymoma & choroid plexus	5	2	12	0	6.1		€ 0
(b) Astrocytoma	0	0	0	0	25.1		€ 0
(c) PNET (costs are for meddulloblastoma)	8	14	18	2	12.2	€ 7,496	€ 14,992
(d) Other glioma	0	0	0	0	7.7		€ 0
(e) Other specified	0	0	0	0	5.7		€ 0
(f) Unspecified	0	3	24	13	3.5		€ 0
IV Sympathetic nervous							
(a) Neuroblastoma	6	5	5	3	15.0	€ 4,000	€ 12,000
(b) Other				0	0.2		€ 0
V Retinoblastoma	9	7	6	6	7.4	€ 2,837	€ 17,022
VI Kidney tumours							
(a) Wilms' tumour etc	9	7	6	14	12.4	€ 1,744	€ 24,416
(b) Renal carcinomas	0	0		0	0.2		€ 0
(c) Other & unspecified	0	0		0	0.0		
VII Liver tumours							
(a) Hepatoblastoma	2	2	4	1	2.0	€ 1,583	€ 1,583
(b) Hepatic carcinoma	0	0		0	0.6		€ 0
VIII Bone tumours							
(a) Osteosarcoma	8	13	18	23	5.1	€ 54,643	€ 1,256,789
(c) Ewing's sarcoma	1	0	4	5	3.9	€ 12,315	€ 61,575
bde. Other (Chondrosarcoma)	2	3	2	1	0.8	€ 30,139	€ 30,139
IX Soft tissue sarcomas							
(a) Rhabdomyosarcoma	0	2	5	3	10.8	€ 2,973	€ 8,919
(b) Fibrosarcoma	0	0		3	2.0	€ 4,910	€ 14,730
(c,d) Other specified	2	1	1	1	4.5		€ 0
<i>IXc,d Hemangioperizitoma</i>	0	1					
<i>IXc,d Leiomyosarcoma</i>	1	0					
<i>IXc,d Malig.Mesenchimoma</i>	1	0		1			
(e) Unspecified	0	0		0	1.2		€ 0
X Gonadal & germ cell							
(a) Intra-cranial/intra-spinal germ cell	0			0	2.4	€ 2,996	€ 0
(b) Other extragonadal germ cell	0	0		5	2.2	€ 2,996	€ 14,980
(c) Gonadal germ cell	4	9	9	6	3.5	€ 2,996	€ 17,976
<i>Teratoblastoma</i>	0	2		2			
<i>Dysgerminoma</i>	4	7		4			
(d,e) Other & unspecified	2	3	5	3	0.4	€ 2,996	€ 8,988
<i>Embrional cancer</i>	2	3					
XI Carcinoma & melanoma							
(a) Adrenocortical carcinoma	0	0		0	0.2		€ 0
(b) Thyroid carcinoma	0	2	2	0	1.0		€ 0
(c) Nasopharyngeal carcinoma	3	4	5	6	0.4	€ 2,368	€ 14,208
(d) Malignant melanoma	0	1	1	1	2.8		€ 0
(e) Skin carcinoma	0	0		0	1.4		€ 0
(f) Other carcinoma	0	0		0	2.0		€ 0
XII Other & unspecified	0	0	0	1	1.8		€ 0
severe aplastic anaemia				5		€ 16,750	€ 83,750
TOTAL	142	183	234	214			€ 3,010,657

totals exclude Histiocytoma/Histiocytosis	4	0	1	2
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SUMMARY OF DRUGS REQUIRED BY BISHKEK DEPARTMENT FOR 2006 PATIENTS

Page 16

Vincristin	no. vials		
1 mg	284		
2mg	1055		
total cost	£ 25,436	€ 36,882	

Bleomycin	no. vials		
15,000 units	66		
total cost	£ 1,027	€ 1,489	

Doxorubicin	no. vials		
10mg	2337		
50mg	637		
total cost	£ 102,378	€ 148,448	

Daunorubicin	no. vials		
20mg	1032		
total cost	£ 46,192	€ 66,979	

Mitoxantrone	no. vials		
20mg	130		
total cost	£ 13,000	€ 18,850	

Dactinomycin	no. vials		
0.5mg	637		
total cost	£ 956	€ 1,385	

Cisplatin	no. vials		
10mg	576		
50mg	60		
100mg	218		
total cost	£ 15,840	€ 22,968	

Carboplatin	no. vials		
450mg	108		
total cost	£ 18,214	€ 26,411	

Etoposide	no. vials		
100mg	1628		
total cost	£ 22,076	€ 32,010	

Cyclophosphamide	no. vials		
200mg	54		
500mg	200		
1gm	198		
total cost	£ 1,873	€ 2,716	

Ifosfamide	no. vials		
1gm	220		
2gm	542		
total cost	£ 30,061	€ 43,588	

Methotrexate	no. vials		
5mg	3042		
10mg	16020		
50mg	72		
1gm	872		
5gm	864		
total cost	£ 410,830	€ 595,704	

Asparaginase	no. vials		
10,000u	1056		
total cost	£ 205,677	€ 298,232	

Ara-C	no. vials		
100mg	4790		
500mg	12		
1gm	260		
2gm	12		
total cost	£ 30,470	€ 44,182	

6MP Mercaptopurine	no. vials		
50mg	58746		
total cost	£ 44,130	€ 63,988	

Dexamethasone	no. vials		
10mg	3300		
total cost	£ 1,988	€ 2,883	

Prednisolone	no. vials		
5mg	1560		
25mg	1170		
45mg	3591		
50mg	633		
total cost	£ 1,388	€ 2,012	

Procarbazine	no. vials		
50mg	78		
total cost	£ 58	€ 85	

cis retinoic acid	no. vials		
100mg	252		
total cost	£ 1,130	€ 1,638	

5FU (Fluouracil)	no. vials		
500mg	54		
total cost	£ 346	€ 501	

calcium folinate	no. vials		
15mg	126432		
30mg	17802		
total cost	£ 443,588	€ 643,202	

Mesna	no. vials		
400mg	26379		
1gm	296		
2gm	719		
total cost	£ 52,878	€ 76,673	

Lomustine	no. vials		
40mg	320		
total cost	£ 5,907	€ 8,565	

Amsacrine	no. vials		
100mg	260		
total cost	£ 17,046	€ 24,716	

Tioguanine	no. vials		
40mg	61551		
total cost	£ 111,801	€ 162,112	

Gentamicin	no. vials		
80mg	10940		
total cost	£ 15,316	€ 22,208	

Ceftazidime	no. vials		
1gm	180		
2gm	11250		
3gm	1620		
total cost	£ 241,201	€ 349,741	

Vancomycin	no. vials		
500mg	3549		
1gm	1280		
total cost	£ 49,190	€ 71,326	

Abelcet (lipid)	no. vials		
100mg	1240		
total cost	£ 101,841	€ 147,670	

Hydroxyurea	no. vials		
500mg tabs	384		
total cost	£ 46	€ 67	

DRUGS COST SHEET

Disease **Acute Lymphoblastic Leukaemia (ALL)**

Patient characteristics

Median age 5 years
Average size 0.75 M²

DRUGS	Vials/patient	Cost of drug	Cost of drug	Cost/patient
Vincristin	10x 2mg	1mg = £10.92	2mg = £21.17	£ 211.70
Doxorubicin	18x 10mg	10mg = £18.54	50mg = £92.70	£ 333.72
		200mg = £370.80		
Daunorubicin	8x 20mg	20mg = £44.76		£ 358.08
Cyclophosphamide	3x 1gm	200mg = £1.86	500mg = £3.25	£ 20.26
	1x 500mg	1gm = £5.67		
Methotrexate	252x 10mg	50mg = £2.63	500mg = £25.07	£ 138.60
	45x 5mg (i/th)	1gm = £78.37	5gm = £380.07	£ 75.60
		10mg tabs x 20=£11.0	5mg £1.68	
Asparaginase	16x 10,000	10,000u=£194.77		£ 3,116.32
Ara-C	32x 100mg	100mg = £4.00	500mg = £20	£ 128.00
		1gm = £39.00	2gm = £77.50	
6MP Mercaptopurine	940x 50mg	50mg tabs x25=£18.78		£ 706.13
Dexamethasone	50x 10mg	0.5mg x20 = 70p	2mg x20 = £2.41	£ 30.13
Prednisolone	63x 45mg	1mg x 28 = 53p	5mg x 28 = 68p	£ 16.58
		25mg x56 = £9.30		
calcium folinate	300x 30mg	30mg = £4.62	15mg tabsx10=£40.50	£ 1,386.00
		15mg tabs x 30 = £85.74		
Mesna	450x 400mg	1gm = £4.38		£ 788.40
Tioguanine	1050 x 40mg	40mg tabs x 25=£45.41		£ 1,907.22

Antibiotics/antifungals

20 days of Ceftazidime, Gentamicin, 10 days Vancomycin; 10 days Abelcet child average weight 18kg

Gentamicin	40x 80mg	80mg ampoule = £1.40		£ 56.00
Ceftazidime	60 x 2gm	1gm = £8.79	2gm = £17.59	£ 1,055.40
		3gm = £25.76		
Vancomycin	20 x 500mg	500mg = £8.05	1gm = £16.11	£ 161.00
Abelcet (lipid)	10 x 100mg	100mg = £82.13		£ 821.30
cost per patient				£ 11,310.44
Number of patients p.a.	57	TOTAL COST		£ 644,694.82
cost per patient		converted to euros at 1.45=£1		€ 16,400.13
TOTAL COST		converted to euros at 1.45=£1		€ 934,807.49

Disease **Osteosarcoma**

Patient characteristics

Median age 15 years
Average size 1.5 M²

DRUGS	Vials/patient	Cost of drug	Cost of drug	Cost/patient
Doxorubicin	24x 50mg	10mg = £18.54	50mg = £92.70	£ 2,669.76
	24x 10mg	200mg = £370.80		

Cisplatin	8x 100mg	10mg = £5.85	50mg = £25.37	£ 542.16
	24x 10mg	100mg = £50.22		

Methotrexate	36x 5gm	50mg = £2.63	500mg = £25.07	£ 16,503.84
	36x 1gm	1gm = £78.37	5gm = £380.07	
		10mg tabs x 20=£11.0		

calcium folinate	5472x 15mgtabs	30mg = £4.62	15mg tabsx10=£40.50	£ 15,638.98
		15mg tabs x 30 = £85.74		

Antibiotics/antifungals

20 days of Ceftazidime, Gentamicin, Vancomycin; child average weight 54kg

Gentamicin	100x 80mg	80mg ampoule = £1.40		£ 140.00
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Ceftazidime	60 x 3gm	1gm = £8.79	2gm = £17.59	£ 1,545.60
		3gm = £25.76		

Vancomycin	40 x 1gm	500mg = £8.05	1gm = £16.11	£ 644.40
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cost per patient				£ 37,684.74
Number of patients p.a.	23	TOTAL COST		£ 866,748.93
cost per patient		converted to euros at 1.45=£1		€ 54,642.87
TOTAL COST		converted to euros at 1.45=£1		€ 1,256,785.95

CONSTRUCTION OF NEW ONCOLOGY DEPARTMENT

The department of Children's Haematology and Oncology in the National Center of Oncology at 92, Akhunbaeva in Bishkek is the only specialist department treating children with cancer and haematology diseases (including leukaemia) in Kyrgyzstan.

Effective treatment started in 2000 with the provision of cytostatic drugs from German sponsors. As news of treatment availability has spread so more children are being diagnosed and treated. The numbers have increased from 108 in 2000 to 216 in 2006.

The Bishkek department is still working in the same 10 rooms as 6 years ago. This means that there are normally up to 8 people in a room, including mothers staying with children as carers. This is a very hazardous situation: cross-infection is widespread, including tuberculosis and hepatitis, both by contaminated blood and nosocomial infection. This tiny and inadequate department also suffers from water ingress and general dilapidation, leading to life-threatening fungal infections. Children are dying from viruses and infections who might be saved in sterile modern conditions.

There are no surgical or intensive care facilities in the present department; there is no Day Hospital or outpatients department. With increasing patient numbers long-term follow-up and treatment will become a very substantial requirement. There are no play or education facilities for patients and no family accommodation (families often live more than one day's travelling distant).

Greatly enlarged facilities are needed, including the provision of single treatment rooms for patients at high risk plus supporting facilities. In short a modern onco-haematology department is needed.

A number of international hospitals and charities have been working with the Bishkek unit for the last 4 years, donating money for drugs and equipment and, where treatment is not possible in Kyrgyzstan, taking patients to Europe for treatment. These partners have now co-operated to design a new department and are ready to provide advice and know-how on the construction, equipping and staff training for this much-needed new facility. Italian hospital architects ABC Associati Vicenza have generously produced a design plan providing for a controlled development.



**PROPOSAL TO REFURBISH EXISTING BUILDING TO
PROVIDE A 40 BED NEW DEPARTMENT OF HAEMATOLOGY
AND ONCOLOGY + OUTPATIENT DEPARTMENT IN THE
REPUBLICAN CHILDREN'S HOSPITAL, BISHKEK, KYRGYZSTAN**



NEW DEPARTMENT OF HAEMATOLOGY AND ONCOLOGY IN THE REPUBLICAN CHILDREN'S HOSPITAL OF BISHKEK – KYRGYZSTAN					
REFURBISHMENT OF AN EXISTING BUILDING					
The existing building could be refurbished on three floors. Construction can happen in three developing phases, each one can be realized independently without realizing the others					
Ground floor : day Hospital - Outpatients dept.	mq. 784,00			Phase 2	Phase 2
First floor : patients rooms and facilities 20 beds	mq. 784,00			Phase 1	Phase 1
Second floor : patients rooms and facilities 20 beds	mq. 784,00				
Underground floor : general facilities (laundry, kitchen...)	mq. 784,00			Phase 3	Phase 3
Development phases					
First phase is an in-patient department of 40 beds (20 + 20 beds), plus a laboratory, involving 1st and 2nd floors. All finishing (doors, windows, plaster etc.) is included, and so are the principal furnitures and pumps and technical equipments.					
Second phase is to provide the Day Hospital, with facilities, on the ground floor. All finishing (doors, windows, plaster etc.) is included, and so are the principal furnitures. Technical equipments are less expensive than the In-patients dept.					
PHASES 1 & 2 total costs					
a	Low costs estimate for items	Area SqM	Cost for SqM	Total Cost	Total
Phase 1					
A.	<i>In-Patients Department 20+20 beds and research laboratories</i>	1568.00			
	1 Walls & structures		€ 353.00	€ 553,504.00	
	2 Electrical and Special plant		€ 252.00	€ 395,136.00	
	3 Thermomechanical plant		€ 330.00	€ 517,440.00	
	4 (Technical) Furnitures			€ 357,541.00	
	5 Pumps and other equipment			€ 500,000.00	
	Total low costs estimate for items (40 beds)			€2,323,621.00	€2,323,621.00
Phase 2					
B.	<i>Out-Patients Department</i>	784.00			
	1 Walls & structures		€ 353.00	€ 276,752.00	
	2 Electrical and Special plant		€ 189.00	€ 148,176.00	
	3 Thermomechanical plant		€ 243.00	€ 190,512.00	
	4 (Technical) Furniture			€ 5,979.00	
	5 Contingencies			€ 50,000.00	
	Total low costs estimate for items			€671,419.00	€671,419.00

b	Costs relating for construction contract				
	6 Contingencies		€ 157,702.00		
	7 Preliminary on-the-spot investigations, survey, assessment		€ 20,000.00		
	3 Technical expenses related to planning and direction of work		€ 130,000.00		
	4 Taxes (<i>estimated on Italian fees, but maybe due in Kyrgyzstan</i>)	20.00%	€ 660,548.40		
	Total low costs estimate for construction contracts		€968,250.40	€968,250.40	€968,250.40
	Rounding up				€36,709.60
	TOTAL				€4,000,000.00
	PHASE 3 total costs				
	Third phase is to provide general facilities, such as kitchen, laundry etc, on the ground floor. All finishing (doors, windows, plasters etc.) is included, also the principal furnitures. Finishing level is smaller than the others floors, and so are the technical equipments. So, this phase is less expensive than the others. It can be realized if the general service of the Republican Children's Hospital are not enough to supply the new department of oncology.				
	Phase 3				
	C. General services	784.00			
	1 Walls & structures		€ 135.00	€ 105,840.00	
	2 Electrical and Special plant		€ 101.00	€ 79,184.00	
	3 Thermomechanical plant		€ 132.00	€ 103,488.00	
	Total low costs estimate for items			€288,512.00	€288,512.00
b	Costs relating to construction contract				
	6 Contingencies		€ 14,425.00		
	7 Preliminary on-the-spot investigations, survey, assessment		€ 4,000.00		
	3 Technical expenses related to planning and direction of work		€ 16,000.00		
	4 Taxes (<i>estimated on Italian fees, but maybe due in Kyrgyzstan</i>)	20.00%	€ 64,587.40		
	Total low costs estimate for construction contracts		€99,012.40	€99,012.40	€99,012.40
	Rounding up				€12,475.60
	TOTAL				€400,000.00
	Phase 1 & 2. total costs				€4,000,000.00
	Phase 3. total costs				€400,000.00
	TOTAL AMOUNT				€4,400,000.00

RECOMMENDED STAFFING



STAFFING RECOMMENDATIONS

Children's Department of Hematology & Oncology in the National Center of Oncology, Bishkek

The following recommendations have been made by Lifeline's medical advisers, Dr Simone Cesaro, Padova, and Dr Judith Kingston, London.

	Doctors	Technicians	Nurses
In-patient department (60 patients)	7		23
Out-patient department/Day Hospital (8.30am – 5.30pm)	2		4
Laboratory staff: see below			
Histopathology	1	2.5 days/week	
Cytogenetics	1		
Haematology technician for blood counts/blood films		1	
Biochemistry		2.5 days/week	
Microbiology and Virology		2.5 days/week	
Surgical: see below			
Interventional radiologists for central catheter insertions and percutaneous biopsies	3 half-days /week		3 half-days /week
General paediatric surgeons	2 half-days /week		2 half-days /week
ENT surgeons	1 half-day /week		1 half-day /week
Urology surgeons	1 half-day /week		1 half-day /week
Anaesthetists	7 half-days /week		7 half-days /week

May 2007



EQUIPMENT AND APPARATUS FOR NEW DEPARTMENT



Equipment/materials needed by Children's Department of Hematology & Oncology
 National Center of Oncology, 92, Akhunbaeva, Bishkek, Kyrgyzstan 720010
 Dr Damira Omurzakovna Bayzakova. E mail dobayzakova@mail.ru

SUMMARY

Equipment for path labs	€ 48,753
Equipment for cytotoxic chemo preparation	€ 7,498
Equipment for radiology department	€ 456,750
Equipment for surgical theatres	€ 89,911
Equipment for in-patient ward	€ 423,422
Wardrobe cupboards	€ 38,661
Laboratory	€ 35,154
Consulting room 1	€ 4,558
Consulting room 2	€ 7,792
Trolleys	€ 10,855
Stretchers	€ 10,821
Dressing room	€ 3,300
Offices	€ 5,682
Seating	€ 4,580
Games rooms	€ 10,000
Kitchens	€ 4,000
One-room apartment - family accommodation 10 rooms	€ 100,000
Laundry room	€ 5,000
additions	€ 0
total	€ 1,266,737

This list contains additional items that remain to be costed - to be updated

conv £1=1.45€, \$1=0.734€

	qty	price each	total cost
Equipment for path labs			
Biochemical analyzer		€22,020	€22,020
Kits for analysing urinary HVA/catecholamines		€1,468	€1,468
Blood gas analyser for assessing blood gases + PH levels	Biostat + see buyers guide	€8,410	€8,410
Flow cytometer	gifted by Padova 2007		
Machine to measure methotrexate and cyclosporin levels		€14,680	€14,680
Incubator for cytogenetics investigations			
Microscopes for ward histology examinations	1	€1,450	€1,450
A tank for storage of liquid nitrogen	1		
Urine test tubes and test tapes	DIS090 PN 150 strips @ £26.50 say incl tubes p.a.	€725	€725
<i>subtotal</i>			€48,753
Equipment for cytotoxic chemo preparation			
Laminar flow cabinets for chemotherapy preparation - qty 2	2	€1,835	€3,670
Protective masks and goggles for staff preparing chemotherapy drugs		€725	€725
Pharmaceutical scales	1	€580	€580
Refrigerators for drugs	PoterNash PE902 - 277 litres £870 ea	€1,262	€2,523
<i>subtotal</i>			€7,498
Equipment for radiology department			
Ultrasound machine - one fixed (£70,000) and one portable (£35,000) provisional	1+1	€152,250	€152,250
X ray machine - one fixed (€174000) and one portable (€130500) provisional	1+1	€304,500	€304,500
<i>subtotal</i>			€456,750
Equipment for surgical theatres			
Paediatric ventilator	Tyco Healthcare Dublin	€38,000	€38,000
Coagulator with smoke evacuator. Eschmann £5882 with ancills. Hyfreacator 2000 + H	1	€8,529	€8,529
Operating tables (2)	Eschmann (Cat.80-825-29) with ancills	€20,010	€40,020
Paediatric surgical instruments			
Heart rate, O2 saturations, blood pressure monitors (1)	1	€3,362	€3,362
<i>subtotal</i>			€89,911
Equipment for in-patient ward			
Resuscitation trolley with ETTs, laryngoscope, masks, bagging equipment, emergency drugs Trolley only £8k	1	€3,600	€3,600
Defibrillator incl pads	Welch Allyn AED10 £1,400	€2,030	€2,030
Electric beds qty 10 - confirm total beds specifications	10	€2,900	€29,000
Ordinary beds/cots	4 SECTION BED BY GAS W/OLEODYN.ADJ.HEIGHT cod. 9LD	€2,434	€73,020
REMOVABLE LAMINATE HEAD/FOOT BOARDS cod. 9LD9550	40	€252	€10,080
Bed hoists/slings	info@westholme.co.uk	€1,494	€14,935
Wheelchairs	Transit wheelchair HEA101 PN page 122 @ £215	€310	€3,103
Crutches	10	€44	€435
Suction fittings by bed	40		
Oxygen fittings by bed	10		
Bedside lockers - but see next item so one or the other	40		
DOUBLE F.BEDSIDE TABLE W/Moulded door & serving board cod. 9CR6322	40	€686	€27,440
RECTANGULAR TABLE W/ABS EDGES cod. 9PT0051	40	€278	€11,120
SERENA ARMCHAIR ARM-RESTS AND DRILLED SEAT cod. 9SP0205	40	€97	€3,880
MOTHER BED 1 PLACE cod. 8LP0014	40	€1,661	€66,440
Sheets/pillows/pillow cases/duvets/duvet covers			
Holders at end of each bed for obs charts/drug charts			
Trolleys for procedures	FUR445	€529	€5,293
Trolleys with trays for storing blood bottles, cannulas, needles, syringes etc	10	€529	€5,293
Heart rate, O2 saturations, blood pressure monitors (4) Daray L505 PNp170 @£2295 ea	4	€3,328	€13,311
Trolleys for patient notes (for 10 beds) x 4			
Stands for Infusion pumps + fluid bags	FUR488 PN p108 @£212	€307	€12,296
Drugs cabinets	4	€551	€2,204
controlled drugs cabinets	FUR638 4 shelves @£758	€1,099	€2,198
Refrigerators for drugs	PorterNash PE902 - 277 litres £870 ea	€1,262	€2,523
Infusion pumps	40	€1,483	€59,307
Sodium chloride and dextrose solutions in bags			
Giving sets for fluid infusions, blood and platelet transfusions			
Hickman Line single lumen with introducer kit & tunneling device	125	€133	€16,675
Hickman Line double lumen with introducer kit & tunneling device	125	€155	€19,394
Cannula peripheral catheters (1,000 p.a.)	Braun Vasofix safety £2 ea	€2.90	€2,900
Needles for bone marrow aspiration 400-500 p.a. Estimated cost \$20/needle	450	€14.68	€6,606
Needles for bone marrow trephine			
Intrathecal needles 400-500 p.a.			
Syringes	10mls syringe DIS513 @ £14.50/100	€21.03	€421
Needles for blood sampling	BD Vacutainer Eclipse 21G Blood Collection Needle @£13.70 for 48	€0.41	€4,139
Blood bottles for FBC, U+E, Xmatch, blood cultures etc			
Weighing scales - sitting	seca 959 class III PN page 210 £659	€956	€956
Auriscopes + ophthalmoscope sets	Riester PN pge 164 say £500	€725	€2,900
Stethoscopes	PN page 235 say £60	€87	€348
disposable aprons	DIS620AM @£3/100 ?5000 p.a.	€4.35	€218
disposable gloves white nitrile powder free	£6/100	€8.70	€435

face masks					
sharps bins 5 litres	£2.08 ea	1040	€3.02	€3,137	
Namelet ID bands	£7.50/100	5	€10.88	€54	
screens & white curtains	FUR502 + FUR506	£188	10	€273	€2,726
Stackable chairs					
Work stations with desks and chairs for doctors and nurses		4			
Shelves for protocols/books etc					
X-ray viewing boxes	AW FUR551 PN page 113 @£195	4	€282.75	€1,131	
Filing cabinets for paper, drug charts, observation charts, fluid charts etc		4			
Trolleys for taking round drinks etc to patients		5	€195.75	€979	
Crockery plates,cups, saucers					
Kitchen equipment					
Wash bowls for children in bed					
Bath and hand towels for patients					
Paper towel dispensers over sinks, in bathrooms and kitchen	£12.70+£85 for 9600 towels	50	€141.67	€7,083	
Commodes/bed pans	commode HEA120 @£120	10	€174.00	€1,740	
Waste bins plastic		50	€9	€450	
Bedpan cleaners					
Cleaning equipment for ward - mops/brushes/cleaners					
Wall holders for hand cleansing liquid	liquid £3.60/500mls + £4.5 disp	50	€72.50	€3,625	
Washing machines		4			
Dish washers					
<i>subtotal</i>	In-patient department			€20,925	

WARDROBE CUPBOARDS

COLUMN ON FEET W/GLASS DOOR+SIDES cod. XB CP 2862		16	€1,129	€18,064
TRAY CM 60X40X20 H WITH DIVIDERS cod. VP20D		16	€91.80	€1,469
TRAY CM 60X40X20H cod. VP 20		16	€59	€944
TRAY CM 60X40X10 H WITH DIVIDERS cod. VP10D		16	€70	€1,112
TRAY CM 60X40X10H cod. VP 10		48	€50	€2,400
TRAY CM 60X40X5 H WITH DIVIDERS cod. VP5D		16	€57	€912
TRAY CM 60X40X5 H cod. VP 5		16	€47	€744
COLUMN ON FEET W/BAY DOOR+SHELVES cod. XB CP 5861		8	€1,627	€13,016
<i>subtotal</i>	WARDROBE CUPBOARDS			€38,661

LABORATORY

BASE ON FEET W/BAY DOOR AND SHELF cod. XB BP 5812		15	€794	€11,910
BASE ON FEET WITH 4 BAYDUR DRAWERS cod. XB BP 3811		8	€1,099	€8,792
POSTFORMING TOP cod. TP 67		32	€236	€7,552
CORIAN TOP cod. TC 7		10	€690	€6,900
<i>subtotal</i>	LABORATORY			€35,154

CONSULTING ROOMS 1

3 SECTION EXAMINATION COUCH cod. 9LV0031	1	€ 987	€ 987
PAPER HOLDER cod. 9LV9005	1	€ 42	€ 42
DESK W/2 DRAWERS ART. 701/3 cod. 9SC0026	1	€ 486	€ 486
WRITING CHAIR W/LOW BACK+ARM REST cod. 9SI1242	1	€ 274	€ 274
GLASS CUPBOARD WITH DOORS IN BAYDUR cod. 9AV0526	1	€ 1,058	€ 1,058
WASTE BIN WITH PEDAL cod. 9AB0010	1	€ 80	€ 80
2 STEP FOOT-BOARD ART. 906/2 cod. 9AB0019	1	€ 139	€ 139
STOOL ART. 775 cod. 9AB0016	1	€ 156	€ 156
3 SECTION SCREENING cod. 9AB1013	1	€ 314	€ 314
1 PLACE WALL COAT HANGER ART. 901 cod. 9AA0028	1	€ 20	€ 20
COLUMN COAT HANGER ART. 901 cod. 9AA0005	1	€ 80	€ 80
TROLLEY W/LAMINATE SHELVES cod. 9CM0016	1	€ 387	€ 387
EXAMINATION LIGHT A/20 ON 5 CASTORS cod. 9AB0028	1	€ 340	€ 340
PLASTIC WASTE BIN ART. 915 cod. 9AA0008	1	€ 9	€ 9
BASIN HOLDER - SINGLE ART. 913 cod. 9AB0014	1	€ 186	€ 186
subtotal CONSULTING ROOMS 1			€ 4,558

CONSULTING ROOMS 2

EXAMINATION TABLE 2 SECTION cod. 9LV0040	1	€ 2,284	€ 2,284
PAPER HOLDER cod. 9LV9005	1	€ 42	€ 42
DESK W/2 DRAWERS ART. 701/3 cod. 9SC0026	1	€ 486	€ 486
PLASTIC WASTE BIN ART. 915 cod. 9AA0008	1	€ 9	€ 9
WRITING CHAIR W/LOW BACK+ARM REST cod. 9SI1242	1	€ 274	€ 274
FIXED CHAIR LOW BACK cod. 9SD1512	1	€ 135	€ 135
GLASS CUPBOARD WITH DOORS IN BAYDUR cod. 9AV0526	1	€ 1,058	€ 1,058
WASTE BIN WITH PEDAL cod. 9AB0010	1	€ 80	€ 80
2 STEP FOOT-BOARD ART. 906/2 cod. 9AB0019	1	€ 139	€ 139
STOOL ART. 775 cod. 9AB0016	1	€ 156	€ 156
3 SECTION SCREENING cod. 9AB1013	1	€ 314	€ 314
1 PLACE WALL COAT HANGER ART. 901 cod. 9AA0028	1	€ 20	€ 20
COLUMN COAT HANGER ART. 901 cod. 9AA0005	1	€ 80	€ 80
ROMANO NONIO SCALE cod. 9AB0046	1	€ 1,802	€ 1,802
TROLLEY W/LAMINATE SHELVES cod. 9CM0016	1	€ 387	€ 387
EXAMINATION LIGHT A/20 ON 5 CASTORS cod. 9AB0028	1	€ 340	€ 340
BASIN HOLDER - SINGLE ART. 913 cod. 9AB0014	1	€ 186	€ 186
subtotal CONSULTING ROOMS 2			€ 7,792

TROLLEYS

TROLLEY W/7 DRAWERS cod. 9CL0052	5	€ 2,171	€ 10,855
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STRETCHERS**Stretchers variable**

OLEODYNAMIC ADJUSTABLE STRETCHER cod. 9BB1041	3	€ 2,060	€ 6,180
MATTRESS ART. 959 cod. 9BB9017	3	€ 236	€ 708
COLLAPSIBLE SIDERAILS FOR STRETCHER ART.948 cod. 9BB9008	3	€ 183	€ 549
PERIMETRICAL BUFFER PROFILE cod. 9BB9024	3	€ 172	€ 516
subtotal Stretchers variable			€ 7,953

Stretchers fixed

STRETCHER WITH HEADLIFTER cod. 9BB1008	2	€ 751	€ 1,502
MATTRESS ART. 959 cod. 9BB9017	2	€ 236	€ 472
STRETCHER SIDE RAILS ART. 948 cod. 9BB9005	2	€ 275	€ 550
PERIMETRICAL BUFFER PROFILE cod. 9BB9024	2	€ 172	€ 344
subtotal Stretchers fixed			€ 2,868

DRESSING ROOM

1 PLACE CHANGING ROOM cod. 9AS2031	20	€ 165	€ 3,300
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OFFICES

DESK 120X80X72H CM cod. 9UL1104	2	€ 358	€ 716
CHEST OF DRAWERS ON WHEELS cod. 9UL1511	2	€ 450	€ 900
WRITING CHAIR W/LOW BACK+ARM REST cod. 9SI1242	2	€ 274	€ 548
FIXED CHAIR LOW BACK cod. 9SD1512	4	€ 135	€ 540
CUPBOARD WITH DOORS AND 3 SHELVES cod. 9UA1413S	2	€ 962	€ 1,924
CUPBOARD WITH DOORS AND 1 SHELF cod. 9UA1112	2	€ 373	€ 746
FINISHING TOP 100 CM cod. 9UA1002	2	€ 63	€ 126
LATERAL SIDE 84 CM H. cod. 9UA1100	2	€ 91	€ 182
subtotal OFFICES			€ 5,682

SEATING

CHAIR ON BAR,3 PLACES cod. 9SB6328	10	€ 458	€ 4,580
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GAMES ROOMS

€ 10,000

KITCHENS

€ 4,000

One-room apartment - family accommodation 10 rooms

€ 100,000

LAUNDRY ROOM

€ 5,000

Dr Bayzakova's visit to Padova in February 2006

