



Figure S1 Age distributions of enrolled patients in the 2019–2021 period.

Table S1 Basic demographics of children with different tumor types during the COVID-19 pandemic

Characteristic	NB					RMS					CNS tumor					WT					HB					ES														
	2019	2020	2021	$\chi^2$	P value	2019	2020	2021	$\chi^2$	P Value	2019	2020	2021	$\chi^2$	P Value	2019	2020	2021	$\chi^2$	P value	2019	2020	2021	$\chi^2$	P value	2019	2020	2021	$\chi^2$	P value										
Percent of sample, n (%)	183 (38.2)	119 (24.8)	177 (37.0)	N=479					54 (37.5)	35 (24.3)	55 (38.2)	N=81					18 (43.9)	11 (26.8)	12 (29.3)	N=41					31 (35.2)	23 (26.1)	34 (38.7)	N=88												
Sex, n (%)	3.025 <sup>†</sup> 0.220 <sup>†</sup>					0.040 <sup>†</sup> 0.980 <sup>†</sup>					4.643 <sup>†</sup> 0.098 <sup>†</sup>					5.144 <sup>†</sup> 0.076 <sup>†</sup>					6.800 <sup>†</sup> 0.033 <sup>†</sup>					4.778 <sup>†</sup> 0.092 <sup>†</sup>														
Male	83 (45.4)	66 (55.5)	85 (48.0)						32 (59.3)	20 (57.1)	32 (58.2)						26 (68.4)	7 (38.9)	16 (64.0)						11 (61.1)	2 (18.2)	5 (41.7)						19 (61.3)	9 (39.1)	25 (73.5)	2.597 <sup>‡</sup> 0.321 <sup>‡</sup> 6.745 <sup>§</sup> 0.027 <sup>§</sup> 1.111 <sup>¶</sup> 0.876 <sup>¶</sup>				
Female	100 (54.6)	53 (44.5)	92 (52.0)						22 (40.7)	15 (42.9)	23 (41.8)						7 (38.9)	9 (81.8)	7 (58.3)						12 (38.7)	14 (60.9)	9 (26.5)						5 (41.7)	7 (70.0)	6 (28.6)					
Age (years), n (%)	5.135 <sup>†</sup> 0.527 <sup>†</sup>					8.204 <sup>†</sup> 0.224 <sup>†</sup>					8.944 <sup>†</sup> 0.177 <sup>†</sup>					6.785 <sup>†</sup> 0.341 <sup>†</sup>					4.334 <sup>†</sup> 0.363 <sup>†</sup>					5.734 <sup>†</sup> 0.454 <sup>†</sup>														
≤1.5	48 (26.2)	24 (20.2)	42 (23.7)						9 (16.7)	2 (5.7)	11 (20.0)						1 (2.6)	0 (0.0)	4 (16.0)						4 (22.2)	5 (45.5)	1 (8.3)						9 (29.0)	9 (39.1)	10 (29.4)					
1.5-4	89 (48.6)	67 (56.3)	103 (58.2)						25 (46.3)	12 (34.3)	19 (34.5)						17 (44.7)	9 (50.0)	13 (52.0)						10 (55.6)	5 (45.5)	7 (58.3)						17 (54.8)	12 (52.2)	23 (67.6)					
5-9	37 (20.2)	23 (19.3)	27 (15.3)						14 (25.9)	11 (31.4)	16 (29.1)						15 (39.5)	8 (44.4)	5 (20.0)						4 (22.2)	1 (9.1)	3 (25.0)						5 (16.1)	2 (8.7)	1 (2.9)					
≥10	9 (4.9)	5 (4.2)	5 (2.8)						6 (11.1)	10 (28.6)	9 (16.4)						5 (13.2)	1 (5.6)	3 (12.0)						0 (0.0)	0 (0.0)	1 (8.3)						0 (0.0)	0 (0.0)	0 (0.0)					
Area, n (%)	16.875 <sup>†</sup> 0.154 <sup>†</sup>					20.741 <sup>†</sup> 0.054 <sup>†</sup>					21.718 <sup>†</sup> 0.017 <sup>†</sup>					15.068 <sup>†</sup> 0.130 <sup>†</sup>					4.313 <sup>†</sup> 0.932 <sup>†</sup>					9.860 <sup>†</sup> 0.628 <sup>†</sup>														
Northeast China	15 (8.2)	11 (9.2)	22 (12.4)						4 (7.4)	1 (2.9)	13 (23.6)						1 (2.6)	0 (0.0)	3 (12.0)	10.496 <sup>‡</sup> 0.186 <sup>‡</sup> 8.822 <sup>§</sup> 0.348 <sup>§</sup> 4.584 <sup>¶</sup> 0.999 <sup>¶</sup>					0 (0.0)	1 (9.1)	1 (8.3)						2 (6.5)	3 (13.0)	4 (11.8)					
North China	66 (36.1)	58 (48.7)	82 (46.3)						24 (44.4)	15 (42.9)	21 (38.2)						18 (47.4)	8 (44.4)	14 (56.0)						5 (27.8)	9 (81.8)	6 (50.0)						17 (54.8)	12 (52.2)	16 (47.1)					
Northwest China	16 (8.7)	12 (10.1)	15 (8.5)						4 (7.4)	4 (11.4)	2 (3.6)						0 (0.0)	4 (22.2)	0 (0.0)						2 (11.1)	0 (0.0)	0 (0.0)						1 (3.2)	1 (4.3)	3 (8.8)					
Central China	25 (13.7)	9 (7.6)	12 (6.8)						4 (7.4)	6 (17.1)	3 (5.5)						6 (15.8)	1 (5.6)	1 (4.0)						3 (16.7)	0 (0.0)	0 (0.0)						3 (9.7)	1 (4.3)	3 (8.8)					
East China	51 (27.9)	24 (20.2)	42 (23.7)						13 (24.1)	7 (20.0)	15 (27.3)						12 (31.6)	5 (27.8)	6 (24.0)						7 (38.9)	1 (9.1)	4 (33.3)						7 (22.6)	6 (26.1)	8 (23.5)					
South China	4 (2.2)	1 (0.8)	0 (0.0)						3 (5.6)	0 (0.0)	1 (1.8)						0 (0.0)	0 (0.0)	0 (0.0)						0 (0.0)	0 (0.0)	0 (0.0)						0 (0.0)	0 (0.0)	0 (0.0)					
Southwest China	6 (3.3)	4 (3.4)	4 (2.3)						2 (3.7)	2 (5.7)	0 (0.0)						1 (2.6)	0 (0.0)	1 (4.0)						1 (5.6)	0 (0.0)	1 (8.3)						1 (3.2)	0 (0.0)	0 (0.0)					
First surgical hospital	3.120 <sup>†</sup> 0.209 <sup>†</sup>					10.064 <sup>†</sup> 0.007 <sup>†</sup>					15.884 <sup>†</sup> <0.001					1.535 <sup>†</sup> 0.464 <sup>†</sup>					2.201 <sup>†</sup> 0.333 <sup>†</sup>					3.520 <sup>†</sup> 0.172 <sup>†</sup>														
Specialized hospital	162 (97.6)	107 (100.0)	160 (97.0)						36 (81.8)	11 (47.8)	34 (79.1)	8.335 <sup>‡</sup> 0.012 <sup>‡</sup> 6.743 <sup>§</sup> 0.027 <sup>§</sup> 0.104 <sup>¶</sup> 2.241 <sup>¶</sup>					10 (28.6)	12 (75.0)	14 (77.8)	9.650 <sup>‡</sup> 0.006 <sup>‡</sup> 0.000 <sup>§</sup> 3.000 <sup>§</sup> 11.616 <sup>¶</sup> 0.002 <sup>¶</sup>					16 (100.0)	10 (90.9)	10 (90.9)						20 (83.3)	12 (100.0)	12 (85.7)					
General hospital	4 (2.4)	0 (0.0)	5 (3.0)						8 (18.2)	12 (52.2)	9 (20.9)						25 (71.4)	4 (25.0)	4 (22.2)						0 (0.0)	1 (9.1)	1 (9.1)						4 (16.7)	0 (0.0)	2 (14.3)					

Data were assessed with the chi-squared test. For multiple comparisons, the Bonferroni method was used to correct P values. †, 2019 vs. 2020 vs. 2021; ‡, 2019 vs. 2020; §, 2021 vs. 2020; ¶, 2019 vs. 2021. COVID-19, coronavirus disease 2019; NB, neuroblastoma; RMS, rhabdomyosarcoma; CNS, central nervous system; WT, Wilms tumor; HB, hepatoblastoma; ES, Ewing sarcoma.

**Table S2** Characteristics at diagnosis of patients with central nervous system tumor during the period of the COVID-19 outbreak

Characteristic	N	2019	2020	2021	$\chi^2$	P value
Percent of sample, n (%)	81	38 (46.9)	18 (22.2)	25 (30.9)		
Histology, n (%)					28.809	0.051
Low-grade glioma	3 (3.7)	0	0	3 (12.0)		
Glioblastoma	1 (1.2)	1 (2.6)	0	0		
Glioneuronal and neuronal tumor	1 (1.2)	1 (2.6)	0	0		
Ependymal tumor	8 (9.9)	3 (7.9)	2 (11.1)	3 (12.0)		
Medulloblastoma	28 (34.6)	16 (42.1)	6 (33.3)	6 (24.0)		
Astrocytoma	22 (27.2)	13 (34.2)	5 (27.8)	4 (16.0)		
Other CNS embryonal tumors	7 (8.6)	2 (5.3)	3 (16.7)	2 (8.0)		
Choroid plexus tumor	5 (6.2)	2 (5.3)	2 (11.1)	1 (4.0)		
Germ cell tumor	5 (6.2)	0	0	5 (20.0)		
Pineal tumor	1 (1.2)	0	0	1 (4.0)		
WHO stage, n (%)					11.704	0.165
I	12 (14.8)	5 (13.2)	3 (16.7)	4 (16.0)		
II	10 (12.3)	7 (18.4)	1 (5.6)	2 (8.0)		
III	13 (16.0)	6 (15.8)	4 (22.2)	3 (12.0)		
IV	36 (44.4)	19 (50.0)	8 (44.4)	9 (36.0)		
NOS	10 (12.3)	1 (2.6)	2 (11.1)	7 (28.0)		
Primary tumor site, n (%)					7.006	0.320
Lobe of brain	12 (14.8)	7 (18.4)	2 (11.1)	3 (12.0)		
Spinal cord	2 (2.5)	1 (2.6)	0	1 (4.0)		
Other nervous system <sup>†</sup>	57 (70.4)	23 (60.5)	13 (72.2)	21 (84.0)		
Multiple intracranial	10 (12.3)	7 (18.4)	3 (16.7)	0		
Extracranial metastasis, n (%)					0.595	0.742
Yes	7 (8.6)	3 (7.9)	1 (5.6)	3 (12.0)		
No	74 (91.4)	35 (92.1)	17 (94.4)	22 (88.0)		
Tumor cells in the cerebrospinal fluid					1.804	0.406
+	10 (13.5)	3 (9.4)	4 (23.5)	3 (12.0)		
-	64 (86.5)	29 (90.6)	13 (76.5)	22 (88.0)		

Data were assessed with the chi-squared test. <sup>†</sup>, including the brain stem, cerebellum, ventricle, optic nerve, pineal gland, and other areas of the nervous system. COVID-19, coronavirus disease 2019; CNS, central nervous system; WHO, World Health Organization; NOS, not otherwise specified.

**Table S3** Characteristics at diagnosis of patients with Wilms tumor, hepatoblastoma, and Ewing sarcoma during the period of the COVID-19 outbreak

Characteristic	N	2019	2020	2021	$\chi^2$	P value
Percent of WT sample, n (%)	41	18 (43.9)	11 (26.8)	12 (29.3)		
Staging, n (%)					5.240	0.263
I-III	29 (70.7)	12 (66.7)	7 (63.6)	10 (83.3)		
IV	6 (14.6)	3 (16.7)	1 (9.1)	2 (16.7)		
V	6 (14.6)	3 (16.7)	3 (27.3)	0		
Side, n (%)					6.440	0.169
Left	19 (46.3)	10 (55.6)	4 (36.4)	5 (41.7)		
Right	18 (43.9)	7 (38.9)	4 (36.4)	7 (58.3)		
Bilateral	4 (9.8)	1 (5.6)	3 (27.3)	0		
Histology, n (%)						
Non-anaplasia	22 (53.7)	10 (55.6)	7 (63.6)	5 (41.7)	1.160	0.560
Anaplasia	19 (46.3)	8 (44.4)	4 (36.4)	7 (58.3)		
Percent of HB sample, n (%)	88	31 (35.2)	23 (26.1)	34 (38.7)		
PRETEXT stage, n (%)					5.941	0.430
I	8 (9.1)	3 (9.7)	3 (13.0)	2 (5.9)		
II	33 (37.5)	15 (48.4)	8 (34.8)	10 (29.4)		
III	22 (25.0)	4 (12.9)	6 (26.1)	12 (35.3)		
IV	25 (28.4)	9 (29.0)	6 (26.1)	10 (29.4)		
Risk group, n (%)					9.111	0.058
LR	32 (36.4)	17 (54.8)	8 (34.8)	7 (20.6)		
IR	22 (25.0)	4 (12.9)	6 (26.1)	12 (35.3)		
HR	34 (38.6)	10 (32.3)	9 (39.1)	15 (44.1)		
Histology, n (%)					6.660	0.155
Epithelial	38 (43.2)	13 (41.9)	7 (30.4)	18 (52.9)		
Fetal	8 (9.1)	4 (12.9)	1 (4.3)	3 (8.8)		
Mixed fetal and embryonal	29 (33.0)	9 (29.0)	5 (21.7)	15 (44.1)		
Small cell undifferentiated	1 (1.1)	0	1 (4.3)	0		
Mixed	28 (31.8)	12 (38.7)	6 (26.1)	10 (29.4)		
HCN-NOS	22 (25.0)	6 (19.4)	10 (43.5)	6 (17.6)		
Percent of ES sample, n (%)	43	12 (28.0)	10 (23.2)	21 (48.8)		
Primary tumor site, n (%)					5.508	0.481
Head and neck	12 (27.9)	5 (41.7)	2 (20.0)	5 (23.8)		
Lower extremity	1 (2.3)	1 (8.3)	0	0		
Trunk	28 (65.1)	6 (50.0)	7 (70.0)	15 (71.4)		
Upper extremity	2 (4.7)	0	1 (10.0)	1 (4.8)		
<i>EWSR1</i> translocation, n (%)					5.719	0.057
+	37 (86.0)	8 (66.7)	10 (100.0)	19 (90.5)		
-	6 (14.0)	4 (33.3)	0	2 (9.5)		

Data were assessed with the chi-squared test. COVID-19, coronavirus disease 2019; WT, Wilms tumor; HB, hepatoblastoma; ES, Ewing sarcoma; PRETEXT, pretreatment extent of tumor; LR, low-risk; IR, intermediate-risk; HR, high-risk; HCN-NOS, hepatocellular neoplasm not otherwise specified, *EWSR1*, Ewing sarcoma breakpoint region 1.