**BACKGROUND, AIM AND METHODS**

- Paediatric solid tumours (PST) are a leading cause of death in children aged 1-19 years. The increasing knowledge, gained from comprehensive molecular profiling studies, has been having important clinical impact in terms of diagnosis, prognosis and therapy evaluation.
- Our aim was to progress in bringing molecular medicine to routine clinical practice in the setting of paediatric oncology. We have implemented a protocol between 4 Portuguese reference centres in paediatric oncology and/or molecular biology, for delivery of the molecular portrait of PST. We have enrolled 131 patients, since January 2021 with the following inclusion criteria: age 0-18, newly diagnosed solid tumour/tumour like lesions; previously diagnosed solid tumour/tumour like lesion, presenting as refractory/relapsed disease; availability of tumour material; informed consent. Tumours were reviewed by expert pathologists and profiled with Oncomine Childhood Cancer Research Assay.

**RESULTS**

**STUDY PERFORMANCE**

**CONCLUSIONS**

- NGS with the OCCRA proved to be a valuable tool in the setting of paediatric tumours, resulting from its significant capacity in revealing clinically meaningful molecular alterations that can be potentially used for the diagnosis, prognosis and therapy selection.
- In terms of potential therapeutic targets, BRAF stands out in brain tumours, but FGFR1, EGFR, PIK3CA, PDGFR, ACVR1 and MET might also be potentially relevant targets. In extra cranial solid tumours, the targetable alterations are rarer and include BRAF, PIK3CA, GNAQ, GNA11, MAP2K1, CDK4, ROS1 and TSC1/2.