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Sommario/riassunto	<p>Developmental neuroscience research is on the cusp of unprecedented advances in the understanding of how variations in brain structure and function within neural circuits confer risk for symptoms of childhood psychiatric disorders. Novel dimensional approaches to illness classification, the availability of non-invasive, diverse and increasingly sophisticated methods to measure brain structure and function in humans <i>in vivo</i>, and advances in genetics, animal model and multimodal research now place brain-based biomarkers within reach in the field of psychiatry. These advances hold great promise for moving neuroscience research into the clinical realm. One exciting new area of translational research in child and adolescent psychiatry, is in the use of a variety of neuroscience research tools to track brain response to clinical intervention. Examples of this include: using longitudinal neuroimaging techniques to track changes in white matter microstructure following a training intervention for children with poor reading skills, or using functional imaging to compare brain activity before and after children with bipolar disorder begin taking psychotropic medication treatment. Brain stimulation is another cutting-edge research area where brain response to therapeutic intervention can be closely tracked with electroencephalography or other brain imaging modalities. Research using neuroscience tools to track brain response to clinical interventions is beginning to yield novel insights into the etiopathogenesis of psychiatric illness, and is</p>

providing preliminary feedback around how therapeutic interventions work in the brain to bring about symptom improvement. Using these novel approaches, neuroscience research may soon move into the clinical realm to target early pathophysiology, and tailor treatments to both individuals and specific neurodevelopmental trajectories, in an effort to alter the course of development and mitigate risk for a lifetime of morbidity and ineffective treatments. Excitement and progress in these areas must be tempered with safety and ethical considerations for these vulnerable populations. This research topic focuses on efforts to use neuroscience research tools to identify brain-based biomarkers of therapeutic response in child and adolescent psychiatry.

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