Background: Burnout is highly prevalent among residents and associated with poor personal health and worse patient outcomes. Little is known about the factors which impact burnout longitudinally. Objectives: 1) Define burnout prevalence (via Maslach Burnout Inventory) from 2016-2018 among pediatric residents; 2) Explore demographic factors and experiences related to burnout over time; and 3) Elucidate factors that predict future burnout, stress, and confidence in providing compassionate care (CPCC). Methods: The Pediatric Residency Burnout-Resilience Consortium, a national sample of 34 programs in 2016, 43 programs in 2017, and 49 programs in 2018, conducted an annual anonymous survey of residents for 3 years via APPD LEARN. The survey included personal qualities (quality of life, sleepiness, mindfulness, self-compassion, empathy); experiences (current rotation, recent errors/patient deaths and time off, special learning tracks), satisfaction (career, work/life balance, support, learning environment) and measures of burnout, stress, and CPCC. Cross-sectional and longitudinal regression analyses for these measures were performed. Results: >60% of eligible residents participated each year; burnout rates (54%-56%) were similar all 3 years and not associated with any specified demographic characteristic. In each year burnout was associated with stress, sleepiness, dissatisfaction with work/life balance, and reporting a recent medical error; burnout was inversely associated with higher levels of empathy, self-compassion, quality of life, and CPCC. Higher self-compassion in 2017 correlated with lower stress in 2018. Mindfulness and satisfaction with learning environment and pediatrics as career in 2017 correlated with higher CPCC in 2018. Conclusion: Nationally, burnout prevalence in pediatric residents consistently exceeds 50%. We identified modifiable factors associated with lower burnout including empathy, mindfulness, self-compassion and stress and programmatic interventions which may mitigate burnout such as training in medical errors response, and healthy scheduling paradigms.