Abstract:
Shortly after 2010, some cohorts with well-fixed MoM THA devices started to experience elevated revision rates (above 1% per year). These reports coincided with a major shift towards the use of non-traditional revision criteria that consisted of blood metal measurements and nonradiographic soft tissue imaging. The purpose of this analysis was to evaluate the impact of the non-traditional diagnostic testing on the revision rate trends. We reviewed the available published studies that reported revision rates for MoM THA devices and stratified the results by 1) recalled or discontinued MoM THA devices with mechanical challenges, 2) well-fixed MoM THA devices that received traditional patient management (hip scores and radiographs), and 3) well-fixed MoM THA devices that received non-traditional patient management (blood metal testing and soft tissue imaging). Discontinued or recalled devices with design issues had high revision rates, with 75% of studies (21/28) reporting greater than 1% revisions per year. Revision rates for well-fixed MoM THA devices that received traditional patient management consistently displayed low revision rates: 100% of the studies (44/44) reported estimated revision rates of 1% or less per year. In contrast, patients with well-fixed MoM THA devices that were evaluated with blood metal testing and soft tissue imaging consistently had high revision rates, with 79% of studies (15/19) reporting greater than 1% revisions per year. Our review found that some patients with well-fixed implants underwent revision operations even when symptoms (e.g., pain, discomfort, instability) were mild or absent. We conclude that the recent increase in revision rates for well-fixed MoM implants is due to a divergence in revision criteria and does not appear to be related to any actual changes in MoM implant performance (e.g., higher rates of implant loosening due to high wear). The implications of these results are discussed with regards to patient management as well as specificity and sensitivity of diagnostic testing for local tissue responses.