

The COVID-19 Pandemic May Speed the Development of Point-of-Care Diagnostic Devices

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Editorial

The ongoing coronavirus disease (COVID-19) pandemic is changing our world, and these changes will be long-lasting. In this “new normal” era, gatherings are strictly prohibited; social distancing must be followed. Shopping malls, restaurants, hotels, and city downtowns are no longer packed with people; skyscrapers full of offices stand empty. Moreover, the general public is avoiding routine and emergency hospital visits for fear of contracting COVID-19. As technology allows people to work remotely, more and more residents are reconsidering city living. Modern cities are vibrant and dynamic, however, they are also crowded. Is it still desirable to live in densely-packed areas, which were not designed with highly transmissible respiratory diseases in mind?

The trend toward a migration of residents leaving large cities for the suburbs or rural towns is accelerating. Because there are fewer medical/hospital resources in rural areas than in their urban counterparts, the increase in rural residents requires more point-of-care (POC) testing to be available in areas without major medical centers. Therefore, it is likely that the development of POC diagnostic devices for a variety of diseases, especially COVID-19 and related illnesses, will dramatically increase during and after the COVID-19 era.

The miniaturization and automation of complex laboratory procedures onto small microchips with integrated detection capabilities makes microfluidic devices a natural and ideal fit for POC diagnostic applications. Until recently, typical microfluidic devices consisted of microstructures embedded into a glass, silicon, or polymer substrate fabricated using photolithography, chemical etching, hot embossing, or micro-molding techniques, all of which are time-