

Significance design and the convinency of administerring through



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Significance of the StudyThe findings of the study potentially provides further advancements in the field of the three-dimensional paper-based microfluidic devices through the creation of a device's accessory SM1 which is the TUBS. In relation to diagnosis of UTI through the markers pH, nitrite, and leukocyte, the device may aid communities, especially those in remote areas to conduct early detection and fast preliminary diagnosis of UTI.

The device is also useful in both surveys and statistical researches for urinary analysis upon large-scale group testing in rural communities as it is portable and highly-reproducible in nature. Because the device is cost-effective, non-invasive, and can deliver results faster than laboratory urinalysis, the design can be used in analysis of UTI especially within remote areas that do not have access to other UTI diagnosis tests. This is critical in improving the convenience of UTI diagnostics for the people within the rural areas, wherein cost-effectiveness and easy performance of the device are two of the leading advantages. Installing SM2 a tubular urinary basin section (TUBS) at the center of the device that is specifically designed to standardize time intervals within each microfluidic channel allowing uniformity in the reading of results while maintaining sensitivity of the sample (Sherman, 1975). The addition of this design in a given microfluidic device template may possibly improve efficiency of the three-dimensional paper-based microfluidic device.

This design ultimately provides improvements in both speed and sensitivity of the results. **Scope and Limitations of the Study**This study challenges the traditional design of a three-dimensional paper-based microfluidic device used to test other biological conditions or medical assays by tackling a different approach with a novel design of the device with time-sensitive

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channel design and the convinency of administerring through a cupinstead of syringe. Similarly, this study will integrate the tubular urinarybasin section (TUBS) with micro holes positioned at the microfluidic channelsto improve the means of administration of the urine. With the use of the TUBS, wind will ideally play a factor in speeding up wicking fluid flow from thebasin to the assay (Sherman, 1975). Subsequently, the TUBS minimizes waitingtime for diagnostic tests, making it possible to be used in emergency point-diagnosis. SM3 This research is not a continuation of any previous researches.