

# [Significance design and the convinency of administerring through](https://assignbuster.com/significance-design-and-the-convinency-of-administerring-through/)

Significance of the StudyThe findings of the study potentially provides further advancements inthe field of the three-dimensional paper-based microfluidic devices through the creationof a device’s accessorySM1  which is the TUBS. In relation to diagnosis of UTI throughthe markers pH, nitrite, and leukocyte, the device may aid communities, especially those in remote areas to conduct early detection and fastpreliminary diagnosis of UTI.

The device is also useful in both surveys and statistical researches forurinary analysis upon large-scale group testing in rural communities as it isportable and highly-reproducible in nature. Because the device iscost-effective, non-invasive, and can deliver results faster than laboratoryurinalysis, the design can be used in analysis of UTI especially within remoteareas that do not have access to other UTI diagnosis tests. This is critical inimproving the conveniency of UTI diagnostics for the people within the ruralareas, wherein cost-effectiveness and easy performance of the device are two ofthe leading advantages. InstallingSM2 a tubular urinary basin section (TUBS) at the center of the device thatis specifically designed tostandardize time intervals within each microfluidic channel allowing uniformityin the reading of results while maintaining sensitivity of the sample (Sherman, 1975). The addition of this design in a givenmicrofluidic device template may possibly improve efficiency of thethree-dimensional paper-based microfluidic device.

This design ultimately providesimprovements in both speed and sensitivity of the results. Scope and Limitations of the StudyThis study challenges thetraditional design of a three-dimensional paper-based microfluidic device usedto test other biological conditions or medical assays by tackling a differentapproach with a novel design of the device with time-sensitive 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.