

## Sigma's 30th International Nursing Research Congress

### Telehealth Diabetes Screening Utility of a Wireless Handheld iAssay Blood Analyzer: A Cost Benefit Analysis

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Telemedicine technology may provide quality point of care (POC) services at reduced cost in remote non-clinical settings within an underserved community. A multidisciplinary person-centered iAssay telehealth research collaboration was initiated addressing POC service needs of underserved diabetes clients enrolled at National University Nurse Managed Clinic (NUNMC) sites in the Watts-Willowbrook community. Student participants enrolled in Inter-Professional Collaborative Practice (IPCP)-modeled internship and capstone courses within the School of Health and Human Services, under faculty mentorship, performed a preliminary cost benefit analysis of utilizing a wireless mobile handheld blood glucose- and cholesterol-testing iAssay System device (Class I, 510(k) candidate) that frames POC serviceability of the device for home health providers versus traditional testing and management of diabetic patients at medical facilities. A secondary objective was to develop a feasibility research study protocol, based on CBA results, that can assess the efficiency of the iAssay device in POC screening home health patients by *in vitro* diagnostics and determine its efficacy at monitoring blood glucose and cholesterol, by comparing functionality of the iAssay device to a similar FDA-approved Accutrend System (Roche Diagnostics) device. Here, we report the results of our efforts. The CBA included assessments of direct, indirect and intangible costs associated with both home health providers and facilities, to determine ratios of benefits (dollars of benefit) to costs (per dollar of cost). The total benefits equal \$11,036,820 in health care cost savings, with the total costs of \$302,486; and the ratio of benefits-to-cost is 36:1, suggesting that for every dollar spent, \$36 dollars are saved. Results suggests that utility of the iAssay System to remotely monitor blood chemistries may provide rapid, cost-effective POC blood panel testing and diagnosis in non-clinical settings (vs. routine clinical laboratory testing), and lead to prompt treatment and potentially improved patient outcomes, at a significantly decreased cost. An iAssay clinical trial has been proposed.

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#### Title:

Telehealth Diabetes Screening Utility of a Wireless Handheld iAssay Blood Analyzer: A Cost Benefit Analysis

#### Keywords:

Point of Care, Telemedicine Technology and interprofessional Collaborative Practice

#### References:

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### **Abstract Summary:**

A multidisciplinary iAssay telehealth research collaboration addresses Point of Care needs of underserved diabetes clients utilizing a wireless mobile handheld blood glucose- and cholesterol-testing iAssay System device. The device remotely monitors blood chemistries, rapid blood panel testing and diagnosis in non-clinical settings improving patient outcomes, at significantly decreased costs.

### **Content Outline:**

#### **1. Introduction**

1. Telemedicine technology
  1. iAssay telehealth
2. Multidisciplinary person-centered
  1. Collaborative approach to address needs of vulnerable clients
3. Assay telehealth research
4. Point of Care (POC)
  1. Needs of underserved diabetes clients
  2. Remote non-clinical settings

#### **2. Body**

1. Inter-Professional Collaborative Practice (IPCP)-modeled internship
  1. Faculty mentorship,
  2. Preliminary cost benefit analysis (CBA)
  3. Utilize a wireless mobile handheld blood glucose- and cholesterol-testing iAssay System device (Class I, 510(k) candidate)
  4. CBA frames POC serviceability of the device for home health providers versus traditional testing and management of diabetic patients at medical facilities.
2. Develop a feasibility research study protocol, based on CBA results.
  1. Assess the efficiency of the iAssay device in POC screening home health patients by *in vitro* diagnostics
  2. Determine efficacy at monitoring blood glucose and cholesterol
  3. Comparing functionality of the iAssay device to a similar FDA-approved Accutrend System device.

4. CBA assessments of direct, indirect and intangible costs associated with both home health providers and facilities
5. Determine ratios of benefits (dollars of benefit) to costs (per dollar of cost).
6. The total benefits equal \$11,036,820 in health care cost savings suggesting that for every dollar spent, \$36 dollars are saved.

- **Conclusion**

1. Utility of the iAssay System may provide rapid, cost-effective POC blood panel testing and diagnosis in non-clinical settings (vs. routine clinical laboratory testing)
2. Lead to prompt treatment and potentially improved patient outcomes, at a significantly decreased cost.
3. An iAssay clinical trial has been proposed.

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