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Consumer perceptions of and willingness-to-pay for point-of-care testing services in the community pharmacy

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ABSTRACT

Background: Point-of-care testing (POCT) is a specialty of laboratory medicine that occurs at the bedside or near the patient when receiving health services. Despite its clinical utility, POCT implementation in the community pharmacy setting is slow due to uncertainty about the market for this novel service and remuneration for services rendered.
Objective: To identify 1) demographics and 2) willingness-to-pay preferences of the market niche of consumers who prefer to receive POCT services in the community pharmacy.
Methods: A sample of 188 participants matched to the U.S. population were surveyed in February of 2016 utilizing a self-explicated conjoint analysis survey model.
Results: Age groups differed between the community pharmacy consumer niche and the entire sample. The largest age group of the pharmacy niche consumer group were between 20 and 34 years old. Of those who preferred the community pharmacy setting to receive POCT services, 75% indicated they would be willing to pay $50 or more compared to 79% of the entire sample who preferred to pay $50 or less.
Conclusions: There exists a latent and niche group of consumers interested in community pharmacy provided POCT services. This market niche is younger, and in general willing-to-pay more than the general population for these tests.

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Introduction

Point of care testing (POCT) is an alternative to traditional specimen collection by central laboratory evaluation. Although a relatively new approach to laboratory testing, POCT devices have been available for decades.[1] The designation of a clinical laboratory improvement amendments (CLIA) waived POCT test makes these tests accessible outside of the traditional laboratory setting. Of the various registered CLIA laboratory settings, pharmacies are the fourth most common.[2] Moreover, there currently exists a multitude of CLIA waived devices that have potential applications in the pharmacy setting, ranging from screening to disease monitoring and management, and include blood glucose, hemoglobin A1c (HbA1c), lipids (cholesterol), influenza, and streptococcus pharyngitis, among others.

An often-cited advantage to POCT is the decrease in time from data collection to clinical decision making.[3,4] As a result, it has found utility in many care settings ranging from patient self-care to primary care, and pharmacies to emergency departments.[2] While gaining momentum with other medical providers, community pharmacy has been slow to implement such services.[5] This may be somewhat surprising given POCT is largely a convenience driven service and community pharmacy is widely viewed as a convenient source for healthcare.[6]

Barriers to POCT implementation in the community pharmacy setting include training deficits, workflow challenges, regulatory ambiguity, and questions about cost sharing and reimbursement.[7] Perhaps the greatest barriers to the advancement of POCT services in community pharmacy are economic in nature: POCT services can be expensive to implement on a large scale, with greater

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expenditures on training and equipment required on the front end.[5] This issue is compounded by a lack of widespread third party reimbursement for services provided by a pharmacist in the community pharmacy setting. Although patient self-pay may be one viable option, it is currently unknown if and how much patients are willing to self-pay for these services.

Previous research identified a need to find alternative payment models outside traditional third party payers.[5] The present study builds on this idea by aiming to characterize patient preferences about POCT and their willingness to pay for such services in the community pharmacy setting, and to characterize the niche market demographics for these services.

The objective of the present study is to identify 1) demographics of and 2) willingness-to-pay for the market niche of consumers who prefer to receive POCT services in the community pharmacy.

Methods

A sample of 188 participants matched to the U.S. population were surveyed in February of 2016 utilizing a self-explicated conjoint analysis online survey model. All respondents were derived from a third-party surveying firm that sources survey respondents from across the United States to create representative samples. The survey was administered online using a third-party survey hosting system that invites non-professional survey participants to respond to an invitation, after which eligibly is determined (Qualtrics, Provo, UT). The survey was pilot tested with convenience sample of five respondents not included in the final panel. In addition, an expert consultant from the survey company that was responsible for selecting the nationwide panel reviewed the conjoint analysis for readability and reproducibility. Self-explicated conjoint analysis is a form of adaptive conjoint analysis, and is a well-validated and widely accepted model utilized to reveal consumer choices when asked to select between products of varying features.[8,9] Unlike other forms of conjoint analysis, self-explicated conjoint analysis is survey-based and requires respondents to sequentially rank a product's features, rather than being exposed to several pre-determined “profiles” of a product with different combinations of these aforementioned features. Among the various forms of conjoint analysis, self-explicated conjoint analysis is best suited to reducing measurement error.[10] Additionally, because a single subject is exposed to only pre-determined conjoint profiles and these profiles do not adapt to the respondent, traditional conjoint analysis approaches have larger variability. The underlying principle to a conjoint analysis approach to consumer preferences and decisions is that because there does not exist an ideal product across all product features, consumers must make concessions when choosing between similar products. In this way, a conjoint analysis can provide insights into the decision making of a consumer by uncovering which product features are most important to the selection of a product or shopping location.

During a self-explicated conjoint analysis, participants are exposed to features and feature levels for elimination if they are not suitable. After elimination, those features that remain are preserved and subsequently evaluated for desirability within the same, continuous survey. Lastly, the relative importance of each feature is ranked against other features using a constant sum scale to allocate 100 points between the most desirable levels of each attribute. In this way, a weighted score is created for each feature level based on the participants specific ranking of preference. More specifically, the level of preference (LOP) is determined by users selecting their preference on a 1–10 scale, with “10” being the most preferred and “1” being the least preferred. A composite score for each feature is calculated for each participant using ordinary-least-squares regression, based on LOP and preceding n-1 metric paired-comparison responses. The composite score is then multiplied by the LOP and divided by 100 to create a weighted utility score for each feature level. The mean weighted utility score is then reported by averaging utility scores across all respondents and can be compared between groups.

The present self-explicated, conjoint analysis model introduced subjects to a series of POCT features. Each feature of the POCT product evaluated was assigned several feature levels (Table 1) and participants were asked to rank these by preference. The survey model continued to sequentially ask participants to choose the most and least preferred level of each feature, followed by ranking all remaining levels of each feature, and finally ranking features against each other (Fig. 1). Resultant weighted utility score means for each feature level and feature were averaged across the entire sample, as well as for the community pharmacy market niche in particular. Patients were subsequently surveyed directly for willingness-to-pay preferences after completing the self-explicated conjoint analysis section of the survey. The reason for direct survey was to offset known limitations to self-explicated conjoint analysis, including an inability to tradeoff price with other attribute bundles.[8] In this situation, the respondent always prefers the lowest price. For this reason, the price feature was separated from the conjoint model. To determine community pharmacy niche market demographics and consumer preferences, participants were stratified by the feature “location.” Those participants choosing “10” for the “Retail Pharmacy” location (the highest, or most preferred, rank on the conjoint analysis survey) were assigned to this niche market segment. Analysis of the adaptive conjoint analysis, willingness to pay, and of weighted utility score means was accomplished using SPSS 23 for Mac.

The study was approved by the Institutional Review Board at the University of Tennessee Health Science Center (UTHSC).

Table 1
Self-explicated conjoint analysis features and level details.

Feature	Feature Level
Laboratory Test	Cholesterol
	Vitamin D
	Blood sugar
	A1c
	Liver enzymes
	Thyroid
	HIV
	Influenza
	Streptococcus pharyngitis
	Hepatitis C
Professional endorsement	Doctor recommended
	Pharmacist recommended
	Laboratory professional recommended
	Nurse recommended
Setting of POCT	Retail pharmacy
	Medical office
	Retail laboratory
	Hospital
Preferred Location	Close to home
	Supermarket where you shop
	Close to work
	Close to your doctor
Sample collection	Physician collection
	Pharmacist collection
	Nurse collection
	Pharmacy technician collection
	Self-collection
Delivery of test result	Electronically communicated to healthcare provider
	Electronically communicated to mobile app
	Printed and handed to consumer

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