

Original Research

# Forward and backward transitions in pharmacy-based immunization services

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## Abstract

**Background:** Community pharmacies can engage in immunization services by contracting with an external workforce (outsourced mechanism) or staff pharmacists (in-house mechanism) to deliver the services. Because an outsourced mechanism generally requires lower organizational commitment, pharmacies often start with an outsourced mechanism. Later, these pharmacies can have 1 of the following transitions: sit on a fence by continuing with an outsourced mechanism, move backward by abandoning any immunization services, or move forward by implementing an in-house mechanism.

**Objectives:** Using Rogers' Diffusion of Innovations model and Behavioral Theory of the Firm as guidance, this study identified the associations between perceived characteristics of immunization services and backward/forward transitions.

**Methods:** A cross-sectional mail survey was conducted to collect data from key informants of Washington State community pharmacies during May–July 2004 (response rate = 46.9%). A total of 106 pharmacies were included in the analysis. Based on pharmacy's immunization service transitions, these pharmacies were identified as Fence sitters, Backward movers, or Forward movers. Relationships between these transitions, pharmacy characteristics, and perceived characteristics of immunization services were analyzed using bivariate and multinomial logistic regression techniques.

**Results:** Backward and Forward movers had less positive assessments of outsourced services when compared with Fence sitters. Backward and Forward movers differed in their perceptions of in-house services; Backward movers generally perceived no differences between these 2 services, whereas Forward movers generally perceived in-house services to be superior to outsourced services. Furthermore, the odds of being a Forward mover increased as perceived technical and social benefits of outsourced services decreased, perceived compatibility of in-house services increased, and perceived complexity of in-house services decreased.

**Conclusions:** Perceived characteristics of outsourced and in-house innovations were associated with backward and forward transitions. Findings can be used to guide the development of strategies for facilitating organizational change and preventing the abandonment of immunization services.

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**Keywords:** Adoption; Innovation; Immunization; In-house; Outsourced; Organizational change; Characteristics

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## Introduction

The growth in prescription volume in the United States has increased demand for pharmacists.<sup>1,2</sup> Because the growth in the demand for pharmacists outpaced the number of available pharmacists, pharmacists' dispensing workloads drastically increased.<sup>1,3</sup> At the same time, the pharmacy profession has been increasingly motivating pharmacists and community pharmacies to engage in pharmacy-based patient care services.<sup>4</sup> Because of the increase in dispensing workloads and the pressure to provide patient care services, community pharmacy leaders are facing a workforce challenge to find a way for their pharmacies to engage in patient care services while being able to maintain the efficiency of the dispensing workflow.

To balance patient care services and dispensing routines, 2 mechanisms to implement patient care services are explored. The first mechanism uses an external workforce to provide patient care services while allowing staff pharmacists to continue their dispensing tasks. For the second mechanism, instead of outsourcing the patient care services to an external workforce, staff pharmacists provide patient care services themselves. Similar to terms used in other contexts, these mechanisms are referred to as "outsourced" and "in-house" mechanisms, respectively.<sup>5,6</sup> This study explores the use of outsourced and in-house mechanisms to provide patient care services in community pharmacies.

### *Outsourced versus in-house immunization services*

A pharmacy-based immunization service is selected as an example of patient care services to be studied. This is because it addresses significant pharmacy contributions to public health. In the United States, death rates from influenza and pneumonia are ranked as the fifth leading cause of death for people older than 65 years<sup>7</sup> and as the eighth leading cause of death for the general population.<sup>8</sup> Because inaccessibility to immunization providers prevent many consumers from receiving proper immunizations,<sup>9,10</sup> pharmacies and pharmacists are in a good position to help increase immunization rates<sup>11–13</sup> at a more cost-effective basis than traditional medical clinics.<sup>14</sup> Similar to other patient care services, outsourced and in-house mechanisms can be used to provide pharmacy-based immunization services.

An outsourced mechanism describes a way in which a community pharmacy contracts with an external workforce, such as visiting nurses, to

administer vaccines at the pharmacy. Typically, vaccine administration by this mechanism takes place during certain months at specified dates and times.<sup>15,16</sup> Therefore, the frequency of these immunization services and variety of vaccines offered are limited.<sup>17</sup> A pharmacy that uses an outsourced mechanism must provide space for the immunization services, but commitment beyond this generally is minimal. The benefit of outsourced immunization services is that it allows the community pharmacy to put pharmacy-based immunization services to trial without taking staff pharmacists out from their dispensing routines. Thus, outsourced services are less likely to interrupt the dispensing activities.

To offer in-house immunization services, a community pharmacy brings immunization services within the organization and relies on their pharmacy staff to administer vaccines and manage all aspects of immunization services. The benefits of in-house services to public health, the host pharmacy, and the pharmacy profession are tremendous. For example, because host pharmacies manage immunization services themselves, they can offer a wider range of vaccines on a year-round basis compared with outsourced services.<sup>17,18</sup> Furthermore, using pharmacists to deliver routine influenza immunizations to healthy adults younger than 64 years was more cost-effective than traditional medical clinics.<sup>14</sup> In addition to the cost benefit, in-house immunization services provide convenience for patients; convenience was a major factor in vaccination decisions of adult prescription recipients.<sup>19</sup> The impact of vaccine delivery by pharmacists on immunization rates was documented by at least 2 studies. Grabenstein and colleagues reported that pharmacist-administered immunization services were associated with higher rates of vaccination among those younger than 65 years taking indicator medications for chronic diseases, as well as prescription recipients unvaccinated against influenza in the previous year.<sup>12</sup> Steyer et al., using secondary analysis of the Behavioral Risk Factor Surveillance System, reported that overall influenza vaccination rates of 65 years and older individuals were significantly higher in states where pharmacists could administer vaccines compared with states where pharmacists could not.<sup>20</sup> In addition to public health benefits, in-house immunization services are revenue-generating services and help enhance the professional images of pharmacies and pharmacists.<sup>21,22</sup> Because of these benefits, in-house services are perceived to be superior to outsourced services<sup>17</sup> and

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