



## **Georgia Partnership for Telehealth**

9<sup>th</sup> Annual Conference

March 19-21, 2018

### **Telepharmacy: The Emerging Telehealth Success**

Christopher B. Sullivan, PhD



## Introduction to Speaker

Your speaker for this session is:

Christopher B. Sullivan, PhD

### Statement of Disclosure:

"I have no vested interest or affiliation with any corporate organization offering financial support of grant money for this continuing education program, or any affiliation with an organization whose philosophy could potentially bias my presentation."



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Telepharmacy: The Emerging Telehealth Success

## **Learning Objectives for This Session**

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1. Place telepharmacy within the continuum of telehealth solutions that address problems of access to health care.
2. Identify the health care needs that drive telepharmacy solutions in rural states.
3. Identify key telepharmacy regulations that provide direction at state and national levels.
4. Compare specific use cases and business examples that demonstrate different approaches for implementing telepharmacy solutions.
5. Summarize how telepharmacy will be the new telehealth success.

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Telepharmacy: The Emerging Telehealth Success



## Georgia Partnership for Telehealth

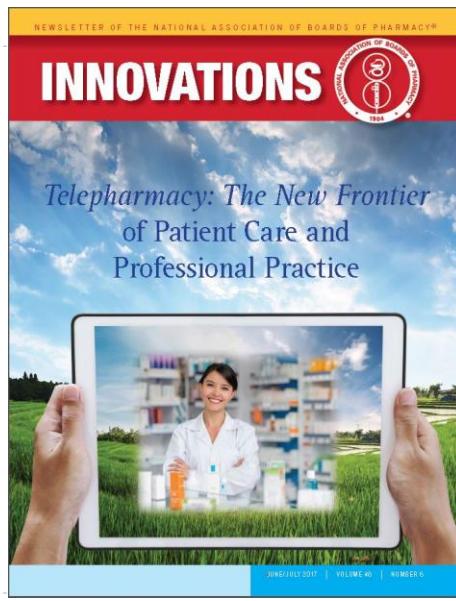
### 9<sup>th</sup> Annual Conference

#### Introduction to Telepharmacy

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## Telepharmacy: The New Frontier



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NEWSLETTER OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY  
Task Force on the Regulation of Telepharmacy Practice met on October 24-25, 2016,  
**NABP Task Force Recommends Expanding Telepharmacy Regulations**

[https://nabp.pharmacy/wp-content/uploads/2016/07/Innovations\\_June\\_July\\_Final.pdf](https://nabp.pharmacy/wp-content/uploads/2016/07/Innovations_June_July_Final.pdf)

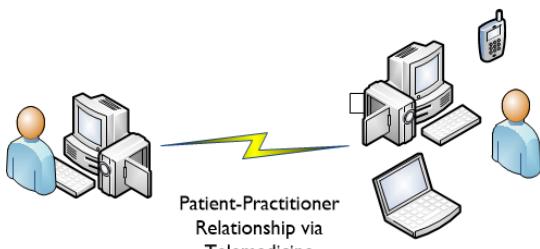
## Transition from Face-to-Face to Telemedicine



"Telemedicine involves... secure videoconferencing or store and forward technology to provide or support healthcare delivery by replicating a traditional, face-to-face encounter."

(FSMB, 2014)

The social expectations of interpersonal communication shift with telehealth to include an electronic interface in a treatment setting



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### State and National Boards

MODEL POLICY FOR THE APPROPRIATE USE OF TELEMEDICINE TECHNOLOGIES IN THE PRACTICE OF MEDICINE

Report of the State Medical Boards' Appropriate Regulation of Telemedicine (SMART) Workgroup

Adopted as policy by the Federation of State Medical Boards in April 2014

Section Three. Definitions For the purpose of these guidelines, the following definitions apply: "Telemedicine" means the practice of medicine using electronic communications, information technology or other means between a licensee in one location, and a patient in another location with or without an intervening healthcare provider. Generally, telemedicine is not an audio-only, telephone conversation, e-mail/instant messaging conversation, or fax. It typically involves the application of secure videoconferencing or store and forward technology to provide or support healthcare delivery by replicating the interaction of a traditional, encounter in person between a provider and a patient.<sup>7</sup>

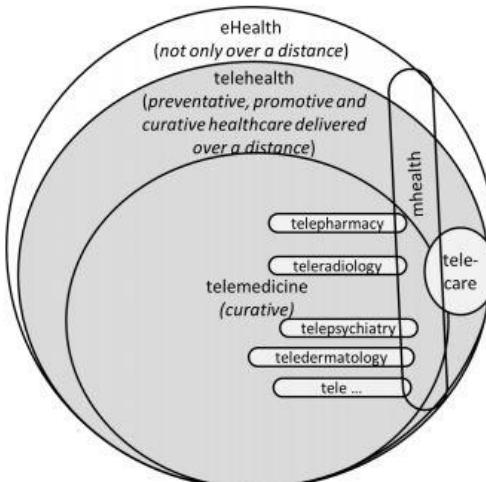
"Telemedicine Technologies" means technologies and devices enabling secure electronic communications and information exchange between a licensee in one location and a patient in another location with or without an intervening healthcare provider.

[https://www.fsmb.org/Media/Default/PDF/FSMB/Advocacy/FSMB\\_Telemedicine\\_Poli](https://www.fsmb.org/Media/Default/PDF/FSMB/Advocacy/FSMB_Telemedicine_Poli)

[cy.pdf](#)

## Telehealth and Telepharmacy are Synonymous

Figure 1. Telemedicine, ehealth, telehealth, telecare and mhealth.



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International Journal of Environmental Research and Public Health

ISSN 1660-4601

[www.mdpi.com/journal/ijerph](http://www.mdpi.com/journal/ijerph)

A Review of Telehealth Service Implementation Frameworks

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Potchefstroom Campus, Potchefstroom 2520, South Africa;

E-Mail: liezl.vandyk@nwu.ac.za;

**Abstract:** Despite the potential of telehealth services to increase the quality and accessibility of healthcare, the success rate of such services has been disappointing. The purpose of this paper is to find and compare existing frameworks for the implementation of telehealth services that can contribute to the success rate of future endeavors. After a thorough discussion of these frameworks, this paper outlines the development methodologies in terms of theoretical background, methodology and validation. Finally, the common themes and formats are identified for consideration in future implementation. It was confirmed that a holistic implementation approach is needed, which includes technology, organizational structures, change management, economic feasibility, societal impacts, perceptions, user-friendliness, evaluation and evidence, legislation, policy and governance. Furthermore, there is some scope for scientifically rigorous framework development and validation approaches.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3945538/pdf/ijerph-11-01279.pdf>

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## Telepharmacy Applications

There are numerous Telepharmacy services employed for remote pharmacy activities in rural areas:

- Electronically supervising remote technicians who are providing full-service pharmacy dispensing.
- Conducting remote consultations with another pharmacist.
- New pharmacist mentoring and consultation.
- Patient assessment and counseling through Medication Therapy Management (MTM).
- Reviewing new medication orders transmitted by fax or electronically and remotely releasing medication from an automated medication dispensing cabinet.

## Example of Telepharmacy Vendor Products

Telepharmacy technologies used for remote pharmacy support



- Pharmacist Remote Inspection and Verification
- Patient Remote Counseling and Patient Education
- Technician Remote Pharmacy Management

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<http://www.scriptpro.com/About/Company-Information>

## Remote Telepharmacy Technologies



### Bringing pharmacies back to rural Iowa

<https://www.iowafarmbureau.com/Article/Bringing-pharmacies-back-to-rural-Iowa>

### North Dakota Telepharmacy Project

<https://www.ndsu.edu/telepharmacy/>



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### Bringing pharmacies back to rural Iowa

By Teresa Bjork

2/25/2016

The Brooklyn Pharmacy is part of a state pilot project to test a new-generation of telepharmacies in rural Iowa.

Iowa City-based company Telepharm helped launch the pilot project in a handful of eastern Iowa communities in 2012 to demonstrate how its software could help bring pharmacies back to rural towns.

<https://www.iowafarmbureau.com/Article/Bringing-pharmacies-back-to-rural-Iowa>

<https://www.iowafarmbureau.com/Article/Live/titleImage?articleid=70031>

### Welcome to Telepharmacy

*"Telepharmacy is working well in North Dakota. It is a great way to restore and retain pharmacy services for many remote rural communities throughout the state.*

*Telepharmacy services produce the same quality as the traditional mode of delivery and provide some value-added features that are not found in traditional pharmacy practice."*

Dr. Charles D. Peterson

Dean, Professor, and Principal Investigator/Director

ND Telepharmacy Project

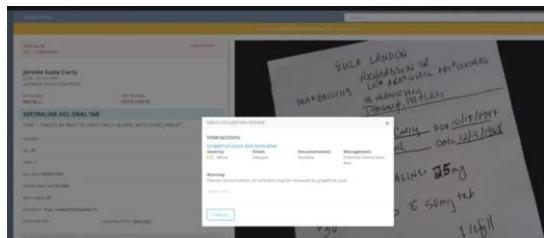
NDSU College of Health Professions

<https://www.ndsu.edu/telepharmacy/>

[https://www.ndsu.edu/fileadmin/\\_migrated/pics/Telepharmacypic..jpg](https://www.ndsu.edu/fileadmin/_migrated/pics/Telepharmacypic..jpg)

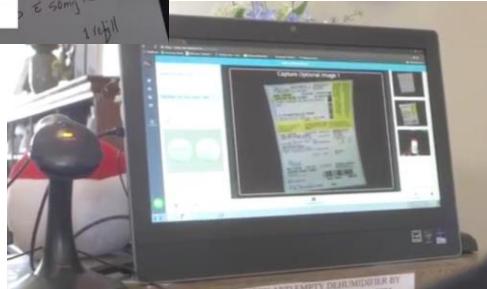
## Telepharm Promotional Video

### "How Telepharmacy Works"



Pharmacist checks  
prescription accuracy  
and drug interactions

Technician receives  
medication instructions  
from the pharmacist



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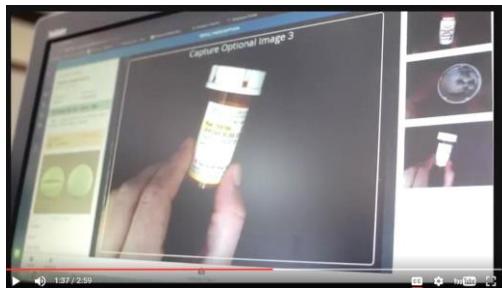
### Watch the video

**Telepharmacy expansion could help rural pharmacies**

<https://www.telepharm.com/how-telepharmacy-works/>

## Telepharm Promotional Video

“How Telepharmacy Works”



The Technician sends a video of the medication for dispensing



The Pharmacist can talk one-on-one with the customer

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**Telepharmacy expansion could help rural pharmacies**

<https://www.telepharm.com/how-telepharmacy-works/>

## Telepharmacy Technology in the Home



Telepharmacy connects rural patients

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Phoning it in: Telepharmacy connects rural patients

JULIE WOOTTON jwootton@magicvalley.com

Jan 19, 2017

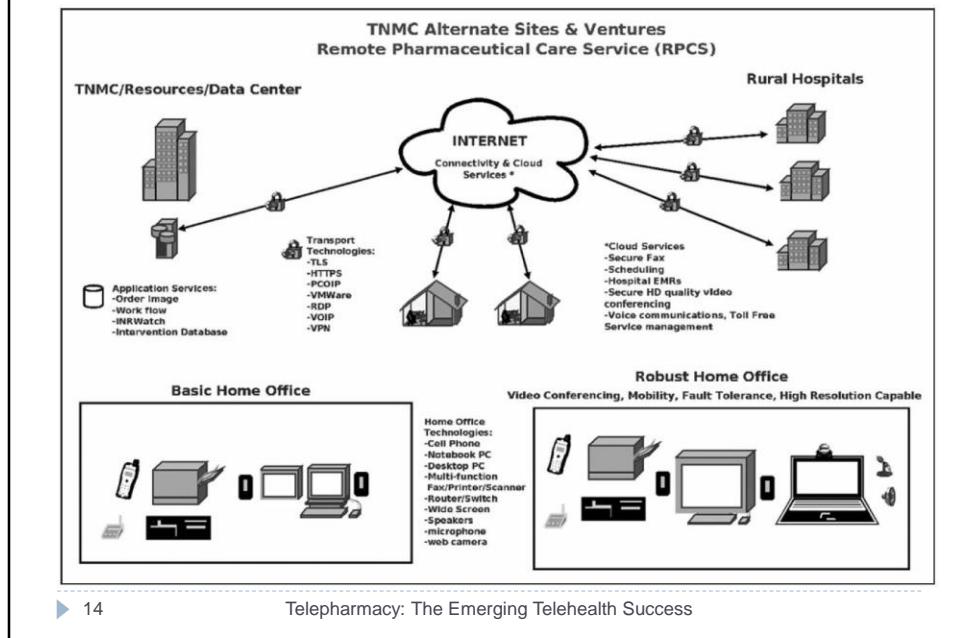
SHOSHONE — For the first time in 15 years, Shoshone residents don't have to travel to another town to get their prescription medications.

Shoshone Pharmacy opened Dec. 22 on South Apple Street. But it's not your average pharmacy.

The owner says it's the first telepharmacy in Idaho to open from the ground up — meaning it's not affiliated with an existing hospital or clinic. It allows an off-site pharmacist to approve orders remotely and do consultations with patients using live video conferencing.

[http://magicvalley.com/news/local/phoning-it-in-telepharmacy-connects-rural-patients/article\\_2d27e4d6-efc3-5059-9dc9-23ef84dfe8b9.html](http://magicvalley.com/news/local/phoning-it-in-telepharmacy-connects-rural-patients/article_2d27e4d6-efc3-5059-9dc9-23ef84dfe8b9.html)

## The Nebraska Medical Center Telepharmacy Model



### A Retrospective Evaluation of Remote Pharmacist Interventions in a Telepharmacy Service Model Using a Conceptual Framework

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Lori J. Murante, PharmD

Alternate Site Pharmacies & Clinical Decision Support,  
The Nebraska Medical Center, Omaha, Nebraska.

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Remote Pharmaceutical Care, Drug Information Service,  
The Nebraska Medical Center, Omaha, Nebraska.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4188381/>

#### Abstract

**Objectives:** This retrospective cross-sectional study evaluated a telepharmacy service model using a conceptual framework to compare documented remote pharmacist

interventions by year, hospital, and remote pharmacist and across rural hospitals with or without an onsite rural hospital pharmacist.

**Materials and Methods:** Documented remote pharmacist interventions for patients at eight rural hospitals in the Midwestern United States during prospective prescription order review/entry from 2008 to 2011 were extracted from RxFusion database (a home-grown system, i.e., internally developed program at The Nebraska Medical Center (TNMC) for capturing remote pharmacist documented intervention data).

The study authors conceptualized an analytical framework, mapping the 37 classes of remote pharmacist interventions to three broader-level definitions: (a) intervention, eight categories (interaction/potential interaction, contraindication, adverse effects, anticoagulation monitoring, drug product selection, drug regimen, summary, and recommendation), (b) patient medication management, two categories (therapy review and action), and (c) health system-centered medication use process, four categories (prescribing, transcribing and documenting, administering, and monitoring). Frequencies of intervention levels were compared by year, hospital, remote pharmacist, and hospital pharmacy status (with a remote pharmacist and on-site pharmacist or with a remote pharmacist only) using chi squared test and univariate logistic regression analyses, as appropriate.

**Results:** For 450,000 prescription orders 19,222 remote pharmacist interventions were documented. Frequency of interventions significantly increased each year (36% in 2009, 55% in 2010, and 7% in 2011) versus the baseline year (2008, 3%) when service started. The frequency of interventions also differed significantly across the eight hospitals and 16 remote pharmacists for the three defined intervention levels and categories. Remote pharmacist interventions at hospitals with an on-site and remote pharmacist ( $n = 12,141$ ) versus those with a remote pharmacist alone ( $n = 7,081$ ) were significantly more likely to be (1) patient-centered, (2) related to “actionable” medication management recommendations (unadjusted odds ratio [OR]= 1.12), and (3) related to the “transcribing” (OR = 1.47) and “prescribing” (OR = 1.40) steps of the health system-centered medication use process level (all  $p < 0.01$ ).

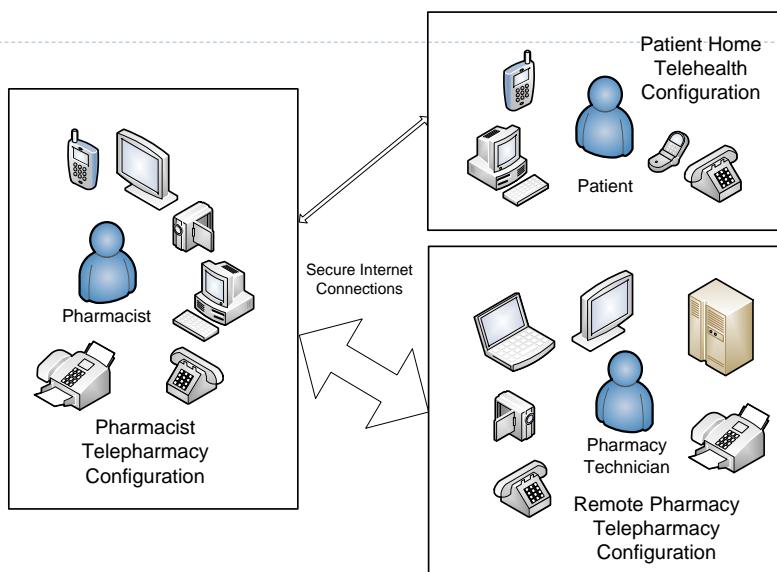
**Conclusions:** This is one of the first studies to demonstrate the patient- and health system-centered nature of pharmaceutical care delivered via a telepharmacy service model by evaluating documented remote pharmacist interventions with an analytical framework.

#### Technical Infrastructure of the Nebraska Medical Center’s Telepharmacy Service Model

Technology represented in the telepharmacy model, aside from computers and related equipment:

- EMR - Electronic medical record
- HD - High definition video
- TLS - Transport Layer Security over the Internet
- HTTPS - Hypertext transfer protocol secure (<https://>)
- PCOIP or PC-over-IP - Cloud-based virtual workplace
- VMWare - Virtualization and cloud computing software
- RDP - Remote desktop protocol
- VOIP - Voice over Internet protocol
- VPN - Virtual private network

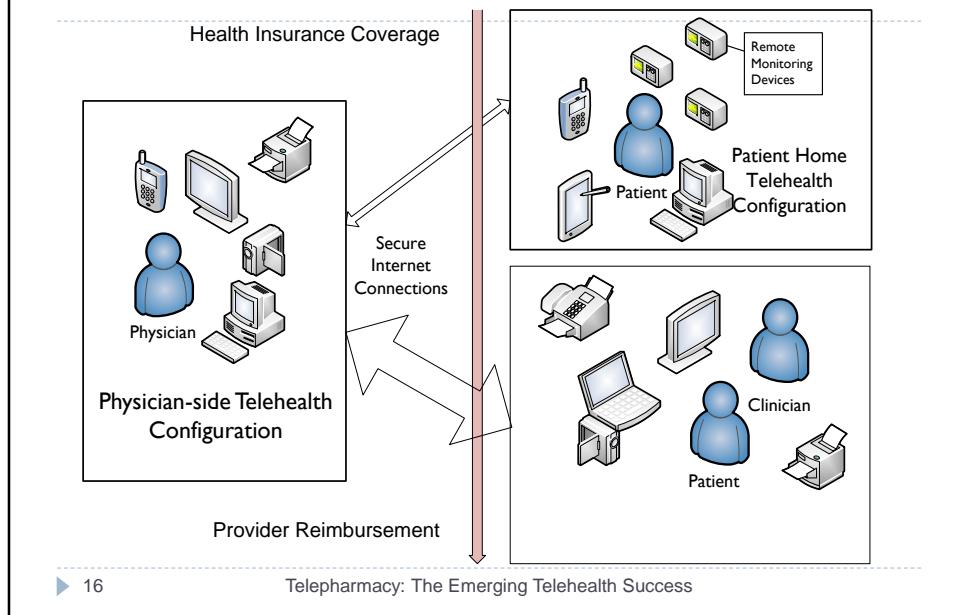
## Telepharmacy Technical Details



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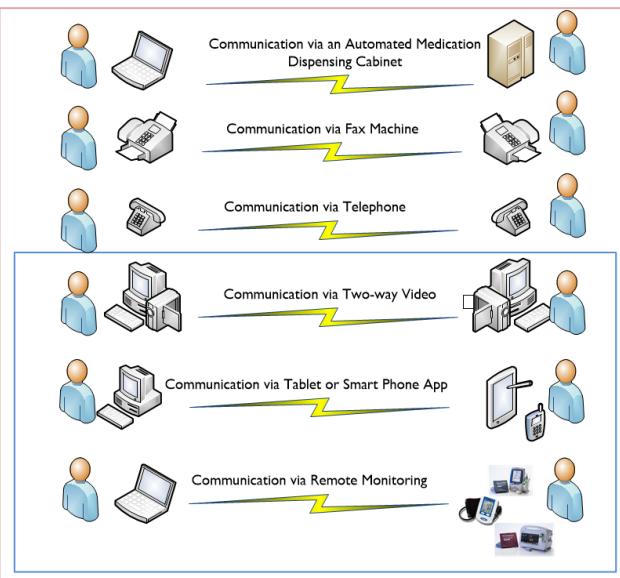
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## Telehealth Model of Engagement



## Technical Scope of Telepharmacy vs Telehealth

Telepharmacy



Telehealth /  
Telemedicine

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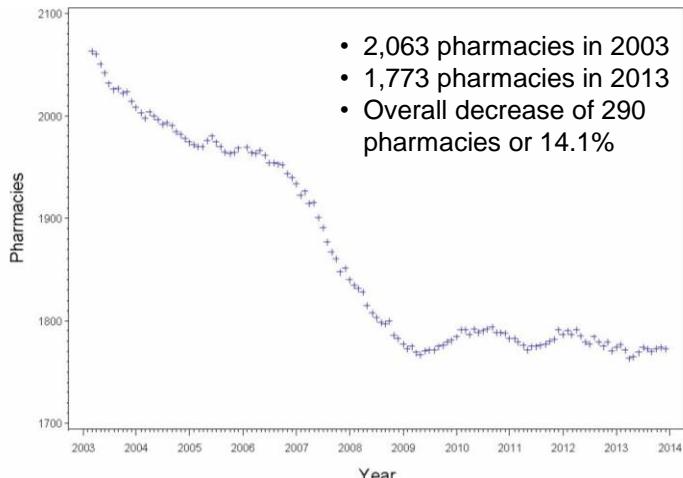
### Rural Need Driving Telepharmacy

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## The Decline of Rural Independent Pharmacies

Monthly Count of Rural Independently Owned Pharmacies  
That Were the Only Pharmacy in a Community, 2003-2013



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### Update: Independently Owned Pharmacy Closures in Rural America, 2003-2013

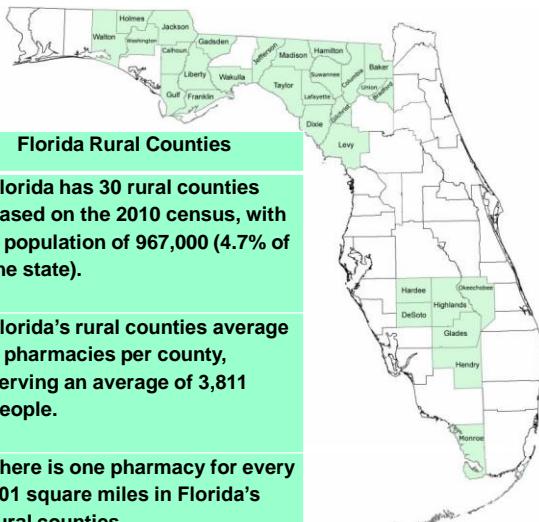
*Fred Ullrich, BA; Keith J. Mueller, PhD*

Brief No. 2014-7 June 2014 [www.public-health.uiowa.edu/rupri](http://www.public-health.uiowa.edu/rupri)

<http://cph.uiowa.edu/rupri/publications/policybriefs/2014/Pharm%20Closure%20Brief%20June%202014.pdf>

The number of retail pharmacies that were the only pharmacy in the community declined fairly steadily between March 2003 and May 2009 (from 2,063 to 1,767) but has remained relatively unchanged since then, with 1,773 such pharmacies in December 2013 (Figure 2).

## Rural Counties in Florida



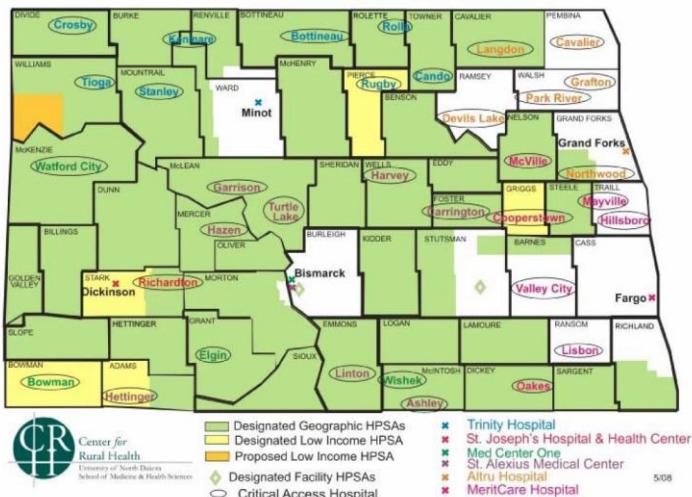
Florida Urban Counties	Florida Rural Counties
<ul style="list-style-type: none"><li>Florida has 37 urban counties with a population of 19,500,000 (95.3% of the state).</li></ul>	<ul style="list-style-type: none"><li>Florida has 30 rural counties based on the 2010 census, with a population of 967,000 (4.7% of the state).</li></ul>
<ul style="list-style-type: none"><li>Florida's urban counties average 159 pharmacies per county, serving an average of 4,128 people.</li></ul>	<ul style="list-style-type: none"><li>Florida's rural counties average 9 pharmacies per county, serving an average of 3,811 people.</li></ul>
<ul style="list-style-type: none"><li>There is one pharmacy every 13 square miles in Florida's urban counties.</li></ul>	<ul style="list-style-type: none"><li>There is one pharmacy for every 101 square miles in Florida's rural counties.</li></ul>

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## ND Telepharmacy Project – Rural Need

**Exhibit 2. North Dakota Health Professional Shortage Areas, Critical Access Hospitals, and Network Affiliates**



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## THE NORTH DAKOTA EXPERIENCE: ACHIEVING HIGH-PERFORMANCE HEALTH CARE THROUGH RURAL INNOVATION AND COOPERATION

Douglas McCarthy, Rachel Nuzum, Stephanie Mika, Jennifer Wrenn, and Mary Wakefield

The Commonwealth Fund, May 2008

<http://www.commonwealthfund.org/publications/fund-reports/2008/may/the-north-dakota-experience--achieving-high-performance-health-care-through-rural-innovation-and-coo>

**ABSTRACT:** Resource constraints and the desire to preserve the local economy have made necessity the mother of invention in North Dakota, driving health care providers and policymakers to try new approaches to care and to institute better practices relatively quickly. Collaboration to support primary care and the concept of a medical home, organization of care through cooperative networks of providers, and innovative use of technology to meet patient needs and hold down costs are examples of how North Dakota is able to provide its citizens with accessible, quality, and efficient health care despite the challenges of a rural setting. Rural communities have a unique context of community trust and interdependence, a social capital that allows them to innovate in meeting patients' needs. A strong sense of mission, vigilance to process and outcomes, and enhanced communication and collaboration among health care providers are key to improvements made in North Dakota health care.

[http://www.commonwealthfund.org/usr\\_doc/1130\\_McCarthy\\_North\\_Dakota\\_experience.pdf?section=4039](http://www.commonwealthfund.org/usr_doc/1130_McCarthy_North_Dakota_experience.pdf?section=4039)

## ND Telepharmacy Project – Pharmacy Rules

The North Dakota Telepharmacy rules allow for the following:

- Retail pharmacies can operate in remote areas of the state without a licensed pharmacist being physically present
- A licensed pharmacist supervises a registered pharmacy technician at a remote telepharmacy site:
  - The pharmacy and remote site are connected by a computer, video, and audio links
  - A registered pharmacy technician is physically present at the remote site
  - The pharmacist compares medications via the video link, checking the label checked for accuracy
  - The pharmacist can counsel the patient on prescriptions using the video and audio links

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## TELEPHARMACY

By: Kevin E. McCarthy, Principal Analyst

November 25, 2013

### ***North Dakota***

In 2001, North Dakota became the first state to pass regulations allowing retail pharmacies to operate without requiring a pharmacist to be physically present. In response to an increasing number of rural community pharmacy closings, the state Board of Pharmacy established pilot telepharmacy rules to explore the feasibility of using telepharmacy to restore and retain pharmacy services in medically underserved remote rural communities.

In September of 2002, the state College of Pharmacy received a federal grant to implement a statewide program to save rural pharmacies from closing and to test the new telepharmacy pilot rules. Ten rural communities were involved in the first year of the grant. The next year, state agencies and grants established the North Dakota Telepharmacy Project, which now supports more than 50 remote retail and hospital pharmacy sites throughout North Dakota. In this program, a licensed pharmacist at a central site communicates with remote site pharmacy technicians and patients through videoconferencing.

In 2003, due to the success of the pilot project, the state Board of Pharmacy established permanent [rules](#) allowing telepharmacy to be practiced on a broader scale (N.D. § 61-02-08-01 et seq.). The permanent rules allow (1) a retail pharmacy to

open and operate in certain remote rural areas of the state without a licensed pharmacist being physically present in the store and (2) a pharmacist to supervise a registered pharmacy technician at a remote telepharmacy site using telepharmacy technology to dispense prescriptions to patients, provide drug utilization review, and counsel patients. Among other things, the rules require that:

1. the pharmacy and remote site be connected by a computer, video, and audio links;
2. a registered pharmacy technician be present at the remote site;
3. the pharmacist compare the stock bottle, drug dispensed, and its strength via the video link, with the entire label checked for accuracy; and
4. the pharmacist must counsel the patient or his or her agent on all new prescriptions and refills using the video and audio links.

The project has expanded over time and there are 81 pharmacies currently involved (25 central pharmacies and 56 remote sites). Of the pharmacies, 53 are retail pharmacies and 28 are hospital pharmacies. Thirty-eight (73%) of the state's counties are involved in the project, as well as two counties in Minnesota. Since the project began, approximately 80,000 rural residents have had pharmacy services restored, retained, or established through the project. According to the project's [website](#), it has restored access to health care in remote, medically underserved areas and added approximately \$26.5 million in economic development to the local rural economy.

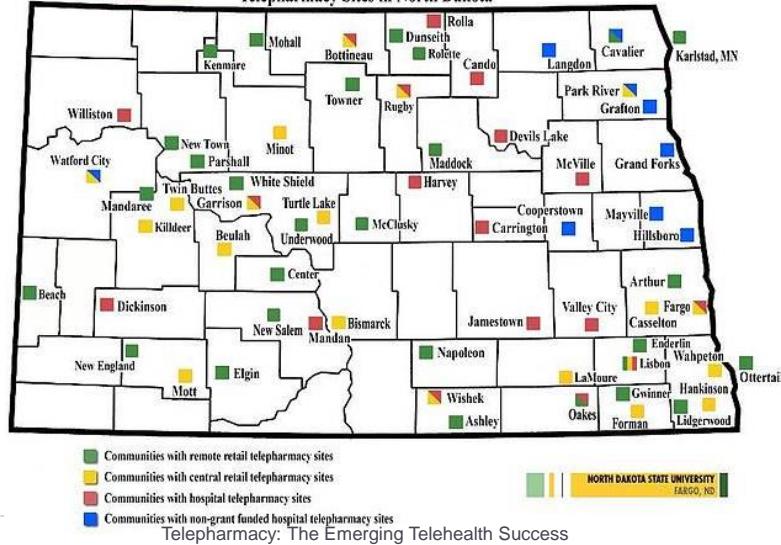
<https://www.cga.ct.gov/2013/rpt/2013-R-0423.htm>

## ND Telepharmacy Project Partners

Remote telepharmacy locations in North Dakota



Telepharmacy Sites in North Dakota



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NORTH DAKOTA STATE UNIVERSITY FARGO, ND

## Telepharmacy Map

[https://www.ndsu.edu/telepharmacy/telepharmacy\\_map/](https://www.ndsu.edu/telepharmacy/telepharmacy_map/)

[https://www.ndsu.edu/fileadmin/\\_migrated/pics/Telepharmacypic..jpg](https://www.ndsu.edu/fileadmin/_migrated/pics/Telepharmacypic..jpg)

## ND Telepharmacy Project - Outcomes

The North Dakota Telepharmacy Project current status:

- 81 pharmacies are involved in the project
- Partnering pharmacies include central, remote, retail and hospital pharmacy sites
- 38 counties covered in North Dakota
  - 2 in Minnesota
- 80,000 rural citizens affected
- \$26.5 million in economic development
- 80-100 new jobs added
- Overall medication error rate at 1% versus 1.7% nationally
- North Dakota telepharmacy permits have increased with no decline in traditional pharmacy locations

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### What is telepharmacy?

Through the use of state-of-the-art telecommunications technology, pharmacists are able to provide pharmaceutical care to patients at a distance. Telepharmacy expands access to quality health care to communities nationwide, primarily in rural, medically-underserved areas.

Through the North Dakota Telepharmacy Project, a licensed pharmacist at a central pharmacy site supervises a registered pharmacy technician at a remote telepharmacy site through the use of video conferencing technology. The technician prepares the prescription drug for dispensing by the pharmacist. The pharmacist communicates face-to-face in real time with the technician and the patient through audio and video computer links. The North Dakota Telepharmacy Project is a collaboration of the NDSU College of Pharmacy, Nursing, and Allied Sciences, the North Dakota Board of Pharmacy, and the North Dakota Pharmacists Association. North Dakota was the first state to pass administrative rules allowing retail pharmacies to operate in certain remote areas without requiring a pharmacist to be present.

To date there are eighty-one pharmacies involved in the North Dakota Telepharmacy Project, twenty-five central pharmacy sites and fifty-six remote telepharmacy sites. Of the eighty-one pharmacies involved, fifty-three are retail pharmacies and twenty-eight are hospital pharmacies. Thirty-eight counties (73%) in North Dakota are involved in the project and two in Minnesota. (See the [North Dakota Pharmacy Services Map](#) link for details).

Approximately 80,000 rural citizens have had their pharmacy services restored, retained, or established through the North Dakota Telepharmacy Project since its inception. The project has restored valuable access to health care in remote medically underserved areas of the state and has added approximately \$26.5 million in economic development to the local rural economy including adding 80-100 new jobs.

Licensed pharmacists provide traditional pharmacy services, including drug utilization review, prescription verification, and patient counseling to a remote site via telepharmacy technology. Retaining the active role of the pharmacist helps assure the delivery of safe, high quality pharmacy services that can be at risk when the pharmacist is left out as in the case of internet and mail-order pharmacies. Telepharmacy sites in North Dakota are full service pharmacies that have complete drug inventories, including over-the-counter and prescription drugs as well as health and beauty aids and other general store merchandise.

<https://www.ndsu.edu/telepharmacy/>

Do remote community telepharmacies have higher medication error rates than traditional community pharmacies? Evidence from the North Dakota Telepharmacy Project.

Friesner DL , Scott DM, Rathke AM, Peterson CD, Anderson HC.

J Am Pharm Assoc (2003). 2011 SepOct;51(5):58090.

<https://www.ncbi.nlm.nih.gov/pubmed/21896455>

Conclusion: This study reported a lower overall rate (1.0%) and a slight difference in medication

dispensing error rates between remote telepharmacy sites (1.3%) and comparison sites (0.8%).

Both rates are comparable with nationally reported levels (1.7% error rate for 50 pharmacies).

## Telepharmacy in a Rural Alberta Community Cancer Network

Telepharmacy services initiated in the absence of a pharmacist in rural cancer centers.

- Pharmacy technicians at two remote community cancer centers connected with pharmacists at a coordinating center
  - A video camera lets the pharmacist observe preparation of drugs based on checklists
  - Intravenous preparations were compounded for 47 cancer patients over the course of 109 treatment visits
- The project estimates it avoided about 27,000 miles of patient travel for treatment



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### Telepharmacy in a rural Alberta Community Cancer Network

Gordon HL, Hoeber M, Schneider A.

J Oncol Pharm Pract. 2012 Sep;18(3):366-76. doi: 10.1177/1078155211431858. Epub 2012 Feb 29.

<http://www.ncbi.nlm.nih.gov/pubmed/22378811>

#### Abstract

Telepharmacy services were developed and adopted to compensate for the absence of a pharmacist in rural Cancer Centers. Preparation included the formation of an advisory committee, development of a training and certification process, establishing new policies and operating procedures, collecting utilization data and a survey of patient and user satisfaction. Pharmacy technicians at two remote community cancer centers were connected by telehealth with pharmacists at one of the two coordinating centers to oversee the compounding of intravenous (I.V.) chemotherapy and provide clinical review of physician orders. In 8 months of telepharmacy use, 247 intravenous preparations were compounded for 47 cancer patients during 109 treatment visits. Approximately 45,000 km (27,000 miles) of patient travel were averted. Pharmacy staff estimates requires an average of 10 additional minutes to process and compound each chemotherapy preparation. Nurses estimate an average of 27.5 additional minutes required to coordinate information for each patient order.

## Deployment of Telemedicine/Telehealth Technologies in Rural Alaska

Five different telemedicine technologies used to provide primary care services to patients throughout the Anchorage Service Unit

- Alaska Federal Health Care Access Network (AFHCAN) Telemedicine Cart
  - Mobile telemedicine workstation equipped with diagnostic devices to collect clinical data
- Video Teleconferencing (VTC) Cart
- *Medication Dispensing Unit*
  - *Automated medication dispensing machine*
- Home Health-Monitoring Unit
- Teleradiology Image Capturing System



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### Availability and Deployment of Telemedicine/Telehealth Technologies in Rural Alaska

Mr. Burhan Khan, Ms. Vanessa Y. Hiratsuka, MPH, Dr. Denise Dillard, PhD, Dr. Renee Robinson, PharmD, MPH, and Dr. Marjorie Mau, MD

HHS Public Access Author manuscript Fed Pract. Author manuscript; available in PMC 2015 December 23.

Published in final edited form as: Fed Pract. 2012 December ; 29(12): 19–21.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4689206/>

#### Abstract

Telemedicine technologies are important lifelines for patients in rural areas. This study found 5 different telemedicine technologies used by patients throughout the Anchorage Service Unit and sheds light on the diverse internal and external teams involved in these services.

#### RESULTS

There were 5 different telemedicine technologies used to provide primary care services to patients throughout the Anchorage Service Unit:

[http://img.medicalexpo.com/images\\_me/photo-g/100260-8146413.jpg](http://img.medicalexpo.com/images_me/photo-g/100260-8146413.jpg)

## Baptist Hospital South Florida Telepharmacy

### ePharmacy Scenario:

A home health nurse feels a patient should talk to a pharmacist about medications that she is prescribed.

- The home health nurse contacts Baptist South Telepharmacy over a two-way video connection to discuss medications with a pharmacist.
- This 96 year old woman and home her health nurse talk to a Baptist South Florida ePharmacist over the computer.



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Telepharmacy: The Emerging Telehealth Success

Watch Now: e-Pharmacy, A Vital Connection

<https://baptisthealth.net/baptist-health-news/electronic-pharmacy/>

Sitting within Baptist Health's Telehealth Center in Coral Gables, pharmacist Gloria Kelly works with the doctors in the hospitals' ICUs to ensure the right medications and dosages are being administered to the patients.

Ms. Kelly also works closely with patients of [Baptist Health Home Care](#) to review the medications with which they are sent home from the hospital and the ones they take at home, including over-the-counter products. One goal: To prevent harmful interactions, omissions of necessary medications, double doses or inadequate doses. The ultimate goal: To keep patients, like Marcial Garcia, safe.

Through video chat, Ms. Kelly connects with Mr. Garcia, checks up on his medications and educates him about important health risks associated with what he has been prescribed.



## Georgia Partnership for Telehealth 9<sup>th</sup> Annual Conference

### Regulatory Drivers for Telepharmacy

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Telepharmacy: The Emerging Telehealth Success

## Regulatory Environment for Telepharmacy

Regulation of Telehealth and Telepharmacy is uneven across the fifty states.

In an article published in March 2016 in the Pharmacy Times, the authors comment that:

- “...as the scope of pharmacy practice and telecommunication technology continues to evolve, the breadth of telepharmacy services makes them difficult to regulate uniformly.”
- “Therefore, when states craft their telepharmacy laws, they often impose varying requirements.”

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Telepharmacy: The Emerging Telehealth Success

### State Regulation of Telepharmacy

Anne Compton-Brown, JD, and Serj Mooradian, JD

**Published Online:** Wednesday, March 23, 2016

- See more at: <http://www.pharmacytimes.com/news/state-regulation-of-telepharmacy>

State regulation of telepharmacy varies depending on the market-driven needs within each particular state. This article synthesizes the patchwork of telepharmacy laws to provide an overview of the regulation of telepharmacy in the United States.

However, as the scope of pharmacy practice and telecommunication technology continues to evolve, the breadth of telepharmacy services makes them difficult to regulate uniformly. Therefore, when states craft their telepharmacy laws, they often impose varying requirements. For example, the Connecticut legislature recognized that in practice, telepharmacy can be broader than pharmacy services provided to patients via remote or automated pharmacy locations, thus permitting telepharmacy to be used by hospital pharmacists to review and verify intravenous sterile compounding by remote pharmacy technicians.<sup>7</sup> This is just one example of the flexibility states have to regulate telepharmacy in a manner that aligns with current state telepharmacy and pharmacy practice. State differences in the regulation of telepharmacy also occur with respect to licensing and operational requirements.

### **Licensing Requirements for Telepharmacy Practice**

States may impose additional telepharmacy licensing requirements on central and remote pharmacy sites and pharmacists, above and beyond the requirement that those entities and individuals obtain the required state licensure to operate as a pharmacy or practice pharmacy within that state. For example, pharmacies that operate kiosks in Georgia must be licensed as a pharmacy in Georgia, obtain a separate license to install and operate the kiosks from the Georgia Board of Pharmacy, and pay the associated licensing fee.<sup>8</sup> Moreover, such pharmacies may only install and operate kiosks in a Georgia-licensed skilled nursing facility or hospice that does not have an onsite licensed pharmacy.<sup>8</sup> As in Georgia, other states also require such facilities to obtain state board of pharmacy approval for kiosks or remote dispensing sites prior to installing the kiosk or beginning operations.<sup>9</sup>

See more at: <http://www.pharmacytimes.com/news/state-regulation-of-telepharmacy>

## **Regulatory approach to Telepharmacy**

### **National Association of Boards of Pharmacy**

“Practice of Telepharmacy” means

- The provision of Pharmacist Care Services by registered Pharmacies and Pharmacists located within US jurisdictions
- Through the use of telecommunications or other technologies
- To patients or their agents at distances that are located within US jurisdictions.

The Practice of Telepharmacy does not restrict the pharmacist to interactive, two-way telecommunications.

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Telepharmacy: The Emerging Telehealth Success

## **Model State Pharmacy Act and Model Rules of the National Association of Boards of Pharmacy**

**August 2016**

### **Section 105. Definitions.**

“Practice of Telepharmacy” means the provision of Pharmacist Care Services by registered Pharmacies and Pharmacists located within US jurisdictions through the use of telecommunications or other technologies to patients or their agents at distances that are located within US jurisdictions.

“Practice of Telepharmacy Across State Lines” means the Practice of Telepharmacy when the patient is located within a US jurisdiction and the pharmacist is located in a different US jurisdiction.

“Practitioner” means an individual currently licensed, registered, or otherwise authorized by the appropriate jurisdiction to prescribe and Administer Drugs in the course of professional practice.

“Valid Patient-Practitioner Relationship” means the following have been established:

- a Patient has a medical complaint;
- a medical history has been taken;
- a face-to-face physical examination adequate to establish the medical complaint has been performed by the prescribing practitioner or in the instances of telemedicine through telemedicine practice approved by the

appropriate Practitioner Board; and  
some logical connection exists between the medical complaint, the medical history, and the physical examination and the Drug prescribed.

Section 105(q6). Comment.

A Valid Patient-Practitioner Relationship includes a relationship with a consulting Practitioner or a Practitioner to which a patient has been referred, or a covering Practitioner, or an appropriate Practitioner-Board-approved telemedicine Practitioner providing that a physical examination had been previously performed by the patient's primary Practitioner.

(c) the prescribing Practitioner is issuing a prescription through a telemedicine practice approved by the appropriate state agency that provides health care delivery, diagnosis, consultation, or treatment by means of audio, video, or data communications. Standard telephone, facsimile transmission, or both, in the absence of other integrated information or data, do not constitute telemedicine practices.

Section 301. Unlawful Practice.

(b) The provision of Pharmacist Care Services to an individual in this State, through the use of telecommunications, the Internet, or other technologies, regardless of the location of the pharmacist, shall constitute the Practice of Pharmacy and shall be subject to regulation.

(1) Licensed Pharmacies located outside this State that provide Pharmacist Care Services to individuals in this State must be licensed within this State under Article V of this Act.

(2) Pharmacists located outside this State who are providing Pharmacist Care Services outside of a licensed Pharmacy to individuals located in this State must register with this State to engage in the nonresident Practice of Pharmacy. The "Practice of Telepharmacy" is deemed to occur within the jurisdiction in which the patient is located and the jurisdiction(s) in which the pharmacist and, if applicable, pharmacy are located; therefore, such practice will be subject to the Pharmacy practice regulations of all jurisdictions' Boards of Pharmacy.

The definition of "Practitioner" anticipates that those persons other than Pharmacists who are permitted to prescribe and Administer Drugs will be specifically so authorized in other legislation.

NABP recognizes that protection of the public health should extend across State borders. Accordingly, the NABP *Model Act* incorporates the Practice of Telepharmacy Across State Lines within the scope of the "Practice of Pharmacy" and requires an independently practicing pharmacist located outside this State to obtain full licensure for providing Pharmacist Care Services from outside the State to patients within the State.

[http://www.fsmb.org/Media/Default/PDF/Publications/FSMB%20Telemedicine%20Policy%20News%20Release\\_042614.pdf](http://www.fsmb.org/Media/Default/PDF/Publications/FSMB%20Telemedicine%20Policy%20News%20Release_042614.pdf)

## American Society of Health-System Pharmacists

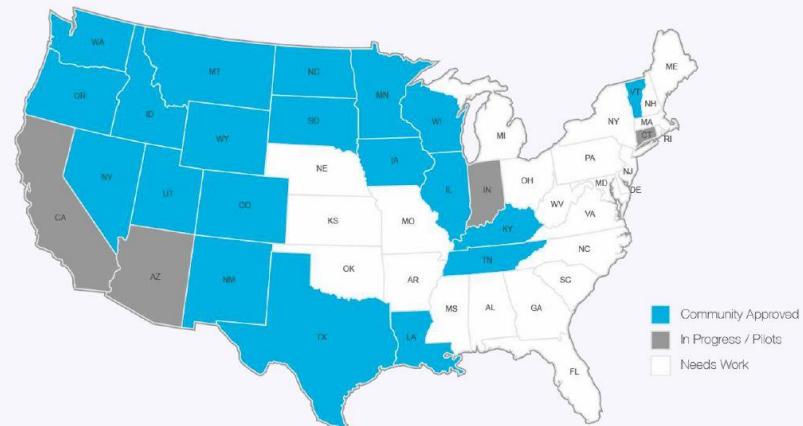
Telepharmacy is “a method used in pharmacy practice in which a pharmacist utilizes telecommunications technology to oversee aspects of pharmacy operations or provide patient care services.”

Telepharmacy operations and services may include:

- Drug review, monitoring and dispensing
- Sterile and nonsterile compounding verification
- Medication therapy management (MTM)
- Patient assessment and counseling
- Clinical consultation
- Outcomes assessment
- Decision support
- Drug information

## States with Telepharmacy Rules and Projects

2016



Source: Quarles & Brady LLP analysis & report, July 2016

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Telepharmacy: The Emerging Telehealth Success

<http://www.telehealthresourcecenter.org/node/764>

See also:

[https://www.telehealthresourcecenter.org/sites/main/files/file-attachments/telepharmacy\\_national\\_trc\\_webinar\\_12152016\\_final.pdf](https://www.telehealthresourcecenter.org/sites/main/files/file-attachments/telepharmacy_national_trc_webinar_12152016_final.pdf)

The National Telehealth Webinar Series

Presented by The National Network of Telehealth Resource Centers

What You Need to Know About Telepharmacy

Greg Janes TelePharm

Thursday, December 15, 2016

## **Telepharmacy Rules and Statutes in 50-States**

States where telepharmacy is permitted or with pilot programs and waivers that enable telepharmacy initiatives:

Alaska, Colorado, Hawaii, Idaho, Illinois, Indiana, Iowa, Louisiana, Minnesota , Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Tennessee, Texas, Utah, Vermont, West Virginia, Wisconsin, Wyoming, Connecticut, Kansas, Michigan, New Jersey, Virginia, Washington, Arizona, California, Maine, Massachusetts, North Carolina

No rules or legislation authorizing telepharmacy use

Alabama, Arkansas, Delaware, **Florida, Georgia**, Kentucky, Maryland, Mississippi, Missouri, New Hampshire, New York, Ohio, Oklahoma, Pennsylvania, South Carolina, Rhode Island

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Telepharmacy: The Emerging Telehealth Success

### **Telepharmacy Rules and Statutes: A 50-State Survey**

George Tzanetakos; Fred Ullrich, BA; Keith Mueller, PhD

RUPRI Center for Rural Health Policy Analysis

Rural Policy Brief

Brief No. 2017-4 APRIL 2017

<http://www.public-health.uiowa.edu/rupri/>

<https://www.public-health.uiowa.edu/rupri/publications/policybriefs/2017/Telepharmacy%20Rules%20and%20Statutes.pdf>

And

<https://www.public-health.uiowa.edu/rupri/publications/policybriefs/2017/Telepharmacy%20Rules%20and%20Statutes%20Supplement.pdf>

## Regulatory Approach to Telepharmacy

### Florida Administrative Code

#### Practice of Pharmacy

- Does not address Telepharmacy

### Florida Statutes

- Florida statutes do not address Telepharmacy.
- CS/SB 848: Telepharmacy bill was introduced in the 2018 Florida Legislative session.
- The Telepharmacy bill passed through all of its committee hearings, but was withdrawn from consideration at the end of the session.

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Telepharmacy: The Emerging Telehealth Success

### CS/SB 848: Telepharmacy

GENERAL BILL by Health Policy ; [Grimsley](#) ; (CO-INTRODUCERS) [Broxson](#)

Telepharmacy; Providing permit requirements for remote dispensing site pharmacies; requiring the prescription department manager or other pharmacist employed by the supervising pharmacy to visit the remote dispensing site pharmacy; authorizing a Florida licensed pharmacist to serve as the prescription drug manager at more than one remote dispensing site pharmacy under certain conditions, etc.

**Effective Date:** 7/1/2018

**Last Action:** 3/10/2018 House - Indefinitely postponed and withdrawn from consideration

**Bill Text:** [Web Page](#) | [PDF](#)

<https://www.flsenate.gov/Session/Bill/2018/848/?StartTab=BillHistory#BillHistory>

## Proposed Florida Telepharmacy Regulations

### CS/SB 848: Telepharmacy

Amends Florida statutes to define a Remote Dispensing Site Pharmacy (RDSP).

- Includes every location where medicinal drugs are prepared by a registered pharmacy technician who is electronically supervised by an offsite pharmacist.
- Dispensed to the patient after verification, certification, and counseling by the pharmacist.

An RDSP must be located in a rural area and at least 10 miles from an existing community pharmacy unless the RDSP is located in a hospital or a clinic.

- An RDSP may not lose its permit if a community pharmacy opens within 10 miles of the RDSP.

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Telepharmacy: The Emerging Telehealth Success

### CS/SB 848: Telepharmacy

GENERAL BILL by Health Policy ; [Grimsley](#) ; (CO-INTRODUCERS) [Broxson](#)

Telepharmacy; Providing permit requirements for remote dispensing site pharmacies; requiring the prescription department manager or other pharmacist employed by the supervising pharmacy to visit the remote dispensing site pharmacy; authorizing a Florida licensed pharmacist to serve as the prescription drug manager at more than one remote dispensing site pharmacy under certain conditions, etc.

**Effective Date:** 7/1/2018

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**Bill Text:** [Web Page](#) | [PDF](#)

<https://www.flsenate.gov/Session/Bill/2018/848/?StartTab=BillHistory#BillHistory>

## Proposed Florida Telepharmacy Regulations

### CS/SB 848: Telepharmacy

Allows a registered pharmacy technician to dispense medicinal drugs at an RDSP when operating under electronic supervision of an offsite Florida licensed pharmacist.

Exempts a registered pharmacy technician working in an RDSP from restrictions on dispensing medicinal medications without an active pharmacist's license.

The bill exempts an RDSP from the requirement to close when a pharmacist is not present and on duty -

- If the pharmacist is remotely supervising a registered pharmacy technician at an RDSP.

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Telepharmacy: The Emerging Telehealth Success

### CS/SB 848: Telepharmacy

GENERAL BILL by Health Policy ; [Grimsley](#) ; (CO-INTRODUCERS) [Broxson](#)

Telepharmacy; Providing permit requirements for remote dispensing site pharmacies; requiring the prescription department manager or other pharmacist employed by the supervising pharmacy to visit the remote dispensing site pharmacy; authorizing a Florida licensed pharmacist to serve as the prescription drug manager at more than one remote dispensing site pharmacy under certain conditions, etc.

**Effective Date:** 7/1/2018

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<https://www.flsenate.gov/Session/Bill/2018/848/?StartTab=BillHistory#BillHistory>



## Georgia Partnership for Telehealth

### 9<sup>th</sup> Annual Conference

#### Business Drivers for Telepharmacy

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Telepharmacy: The Emerging Telehealth Success

## Telepharmacy Startups in Rural America

*Implementation of a Telepharmacy Service to Provide Round-the-clock Medication Order Review by Pharmacists*



Mercy Health Network of small hospitals in 14 counties of Iowa installed a pharmacy information system to support around-the-clock medication order review by pharmacists.

- Twenty-four hour medication order review was achieved by partnering with remotely located pharmacists.
- Critical access hospitals pay \$4 per medication order review.
  - Additional costs for the pharmacists' reviews are directly reimbursed for Medicare patients.
- Overall, about 58% of the total reviews were conducted by the remote pharmacists.

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Telepharmacy: The Emerging Telehealth Success

Implementation of a telepharmacy service to provide round-the-clock medication order review by pharmacists

Douglas S. Wakefield, Marcia M. Ward, Jean L. Loes, John O'Brien, and Leevon Sperry  
Am J Health-Syst Pharm—Vol 67 Dec 1, 2010

Case Study Telepharmacy service

Effective execution of all aspects of the medication-use process, including prescribing, dispensing, and administration, is necessary to ensure high-quality, safe medication practices. Many regulatory, advisory, and purchasing groups have established numerous requirements and recommendations for improving medication safety. Chief among these is the need for pharmacist review of medication orders before medications are dispensed and administered to patients.

Approximately half of all medication errors occur in the prescribing stage of the medication-use process and may be attributed to the prescriber's lack of knowledge of a drug, the prescriber's failure to adhere to accepted practices and procedures, or general slips and memory lapses during the ordering process.<sup>4</sup> Pharmacist review of medication orders reduces prescribing errors, as the pharmacist screens the orders for incorrectly prescribed medications (e.g., wrong drug, wrong dose, wrong frequency), interactions, and contraindications. The potential advantages of medication order review in acute care facilities have been previously discussed in-

depth.

<https://www.nodakpharmacy.com/pdfs/telepharmacyFirstDose.pdf>

## Telepharmacy Startups in Rural America

### *Around-the-Clock Review Via Telepharmacy*

In 2012 the North Canyon Medical Center, a critical access hospital in Gooding, Idaho, had pharmacist coverage only from 7:30 AM to 4:00 PM each day.

- In 2013 the pharmacy director launched a telepharmacy service for five hospitals in which five pharmacists working from home provide 24/7 coverage.
  - Review and verify medication orders
  - Enter orders in patients' EHRs,
  - Check for drug interactions,
  - Review medication strength
  - Consult with physicians as needed



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Telepharmacy: The Emerging Telehealth Success

### **Around-the-Clock Review Via Telepharmacy**

Pharmacy Practice News

OCTOBER 11, 2016

When Tyson Frodin, PharmD, became the pharmacy director of North Canyon Medical Center in Gooding, Idaho, in 2012, the 15-bed critical access hospital only had pharmacist coverage from 7:30 a.m. to 4 p.m. each day.

Dr. Frodin suggested an arrangement in which he would cover the hospital remotely from home after hours. The medical center's senior leadership loved the idea but suggested he expand it to include other hospitals in their regional cooperative. The result? A telepharmacy service, established in 2013, that covers five hospitals 24/7, in which Dr. Frodin and four other telepharmacists—all current or former employees of those hospitals—review and verify medication orders, enter orders in patients' EHRs, check for drug interactions, review medication strength and route, and consult with physicians as needed.

Through the Idaho service, telepharmacists work from home offices using dedicated laptop computers with secure access to each hospital's EHR and pharmacy system. They promise 15-minute turnaround times to verify and enter stat orders and 60-minute turnaround times for standard orders, although they're averaging 13-minute turnaround times on all. It's been so successful that they want to bring on another three hospitals this fall, Dr. Frodin said.

<http://www.pharmacypracticenews.com/Technology/Article/10%AD16/Around%ADt>

he%ADClock%ADReview%ADVia%ADTelepharmacy/38231/ses=ogst

## Telepharmacy Startups in Rural America

*Telepharmacy at rural hospitals provides big savings, quality improvements*



Grand River Hospital and Medical is a 13-bed critical access hospital in Western Colorado

- The hospital has saved about \$300,000 in staffing costs by using telehealth tools to establish a 24-hour pharmacy.

Grand River clinicians use PipelineRx to connect with remote pharmacists who verify orders, after which an automatic dispensing machine doles out the medications.

- About 95% of the medications delivered via the telepharmacy program are located in the dispensing machine.



When a prescription is updated the system sends an order via an electronic interface to Grand River nursing staff to dispense to the patient.

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Telepharmacy: The Emerging Telehealth Success

## Telepharmacy at rural hospitals provides big savings, quality improvements

By Bill Siwicki, January 03, 2018 | 10:21AM

Twitter: @SiwickiHealthIT (<https://twitter.com/SiwickiHealthIT>)

Email the writer: [bill.siwicki@himssmedia.com](mailto:bill.siwicki@himssmedia.com) (<mailto:bill.siwicki@himssmedia.com>)

As technology vendors increasingly specialize on telepharmacy, rural providers are deploying the tools to offer patients 24/7 pharmacy services.

<http://www.healthcareitnews.com/news/telepharmacy-rural-hospitals-provides-big-savings-quality-improvements>

Grand River Hospital and Medical Center, a 13-bed critical access hospital in Western Colorado which sees an average of seven patients a day, has saved about \$300,000 in staffing costs by using telehealth tools to establish a round-the-clock pharmacy.

Grand River clinicians use PipelineRx to connect with remote pharmacists who verify orders and handle clinician questions, after which an automatic dispensing machine

doles out the medications.

HIMSS Analytics researchers, in fact, asked executives ahead of a free December webinar what IT initiatives topped their priority lists. No surprise: 55.2 percent said telemedicine, followed by security (47.9 percent), business continuity and disaster recovery (43.8 percent), physician satisfaction (41.7 percent), population health management (29.2 percent), clinical intelligence and analytics (24.0 percent), patient portal (17.7 percent), financial intelligence and analytics (17.7 percent), mobile technology (13.5 percent), patient education (8.3 percent) and precision medicine (2 percent).

HIMSS Analytics Senior Director of Research Bryan Fiekers said in a previous article that telemedicine is driving greater access to care for patients that would otherwise have to travel long distances to interact with doctors.

The same holds true in of patients and pharmacists in Grand River. And in addition to the staffing costs Grand River Hospital saves, having access to a pharmacist 24/7 pays other dividends.

"Grand River also has generated savings through tele-pharmacist interventions, the majority of which are safety related - clarifications, QI, prevention, renal assessment, therapeutic; McClew said. "In Q3 2017, pharmacists documented more than 350 interventions, representing more than \$50,000 in cost savings."

## Telepharmacy Startups in Rural America

*Sustainability of the business model underlying the North Dakota Telepharmacy Project (NDTP)*

The goal of the NDTP was to create the infrastructure necessary to support the development of telepharmacy sites.

- Survey responses indicated that telepharmacy sites - especially remote sites - generate small positive financial returns for the organization.
- Respondents also reported that the closure of their remote sites would significantly harm the communities they serve.

NDTP has promoted telepharmacy via investment and shared decision-making with pharmacy owners in North Dakota.

- The telepharmacy model is sustainable, even if it does not generate significant economic profit.

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Telepharmacy: The Emerging Telehealth Success

J Am Pharm Assoc (2003). 2017 May - Jun;57(3):362-368.e5. doi: 10.1016/j.japh.2017.02.005. Epub 2017 Apr 8.

Perceived sustainability of community telepharmacy in North Dakota.

Scott DM, Friesner DL, Undem T, Anderson G, Sem K, Peterson CD.

Abstract

OBJECTIVES:

To assess the sustainability of the business model underlying the North Dakota Telepharmacy Project (NDTP).

SETTING:

Of the 38 community pharmacy organizations (14 central, 24 remote), 27 organizations (11 central and 16 remote sites) in North Dakota provided a useable set of responses (71.1% response rate). A twelfth organization (a community pharmacy) ceased operations over the study's time frame and was not included in the data analysis.

PRACTICE DESCRIPTION:

Emphasis is placed on NDTP community telepharmacies, because the community telepharmacy business model is more established than hospital telepharmacies. Yet little is known about the long-run financial viability of telepharmacies.

#### **PRACTICE INNOVATION:**

Originally funded by a series of federal grants, the goal of the NDTP was to create the infrastructure necessary to support the development of telepharmacy sites. A 48-item questionnaire assessed the self-reported operational, financial, and community impacts of a community telepharmacy.

#### **EVALUATION:**

The questionnaire was administered from December 2015 to February 2016 to all NDTP community telepharmacy owners-managers. Thus, 1 participant (owner-manager) addressed both central and remote-site locations served by a pharmacy.

#### **RESULTS:**

Most respondents reported that their telepharmacy sites (especially remote sites) generate small positive financial returns for the organization. Respondents also reported that the closure of their remote sites would significantly harm the communities they serve.

#### **CONCLUSION:**

NDTP aims of restoration and retention have been achieved via the investment and shared decision making with pharmacy owners in North Dakota. The telepharmacy model is sustainable, even if it does not generate significant economic profit.

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<https://www.ncbi.nlm.nih.gov/pubmed/28400253>

## Telepharmacy Startups in Rural America

### *Illinois village loses pharmacy, gains telepharmacy*

The pharmacy in the central Illinois village of Dieterich closed several years ago. But residents will be able to fill prescriptions locally again through a new telepharmacy.

- Telepharmacies allow off-site pharmacists to help patients via a secure video link.
- A pharmacist in the nearby city of Newton is providing telepharmacy services at the Dieterich clinic from her pharmacy.
- The telepharmacy will help patients who have been driving to Effingham or Newton to fill their prescriptions.



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Telepharmacy: The Emerging Telehealth Success

### **Illinois village loses pharmacy, gains telepharmacy**

DIETERICH, Ill. -- The pharmacy in the central Illinois village of Dieterich closed several years ago. But the town of 600 residents soon will be able to fill prescriptions locally again through a new tele pharmacy.

Tele pharmacies allow off-site pharmacists to help patients via a secure video link.

The Effingham Daily News reports (<http://bit.ly/2906fMP>) pharmacist LaDonna Poehler will provide tele pharmacy services at the Dieterich clinic from her pharmacy in the nearby city of Newton.

Dr. Michelle Braddy practices medicine in Dieterich. She says the telepharmacy will help patients who have been driving to Effingham or Newton to fill their prescriptions.

<http://www.dailyherald.com/article/20160629/news/306299805/>

[http://www.effinghamedailynews.com/news/local\\_news/closer-look-telepharmacies-gaining-popularity-in-small-towns-like-dieterich/article\\_d21e1f63-1cd9-5383-93d1-8959334f94da.html](http://www.effinghamedailynews.com/news/local_news/closer-look-telepharmacies-gaining-popularity-in-small-towns-like-dieterich/article_d21e1f63-1cd9-5383-93d1-8959334f94da.html)

## Telepharmacy Startups in Rural America

*Phoning it in: Telepharmacy connects rural patients*

For the first time in 15 years, Shoshone residents don't have to travel to another town to get their prescription medications.

- Shoshone Pharmacy opened Dec. 22, 2016 as the first telepharmacy in Idaho to open that is not affiliated with an existing hospital or clinic.
  - Shoshone Pharmacy allows an on-site pharmacist to approve orders remotely and do consultations with patients using live video conferencing.
  - "It's bringing pharmacy back to rural Idaho."



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Telepharmacy: The Emerging Telehealth Success

### Phoning it in: Telepharmacy connects rural patients

JULIE WOOTTON jwootton@magicvalley.com Jan 19, 2017

SHOSHONE — For the first time in 15 years, Shoshone residents don't have to travel to another town to get their prescription medications. Shoshone Pharmacy opened Dec. 22 on South Apple Street. But it's not your average pharmacy.

The owner says it's the first telepharmacy in Idaho to open from the ground up — meaning it's not affiliated with an existing hospital or clinic. It allows an on-site pharmacist to approve orders remotely and do consultations with patients using live video conferencing.

It will allow Shoshone's 1,500 residents to fill prescription medications they rely on without having to travel to another town. "It's bringing pharmacy back to rural Idaho," owner/pharmacist Jason Reading said.

And beyond Shoshone, many Magic Valley hospitals use telemedicine services and are looking to expand their offerings.

[http://magicvalley.com/news/local/phoningitintelepharmacyconnectsruralpatients/article\\_2d27e4d6efc350599dc923ef84dfe8b9.html](http://magicvalley.com/news/local/phoningitintelepharmacyconnectsruralpatients/article_2d27e4d6efc350599dc923ef84dfe8b9.html)

[http://magicvalley.com/news/local/phoning-it-in-telepharmacy-connects-rural-patients/article\\_2d27e4d6-efc3-5059-9dc9-23ef84dfe8b9.html](http://magicvalley.com/news/local/phoning-it-in-telepharmacy-connects-rural-patients/article_2d27e4d6-efc3-5059-9dc9-23ef84dfe8b9.html)

## Telepharmacy Startups in Rural America

*Telepharmacy expansion could help rural pharmacies survive*

Newly enacted legislation in Iowa expanded a pilot project that will let so called telepharmacy services go statewide in communities with more than 500 residents, Radio Iowa reported.

- Telepharm, an Iowa City company, makes a licensed pharmacist available to remote locations in the state's first telepharmacy pilot project.
- TelePharm provides web-based pharmacy services.
- The company's platform offers a video conferencing system.



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Telepharmacy: The Emerging Telehealth Success

### Telepharmacy expansion could help rural pharmacies survive

Monday, April 25, 2016 10:25 AM

Business Record

Newly enacted legislation expands a pilot project that will let so called telepharmacy services go statewide in communities with more than 500 residents, Radio Iowa reported.

Gov. Terry Branstad last week signed the bill effective July 1, which allows qualifying pharmacies without a pharmacist on staff to offer customers telepharmacy services. Telepharm, an Iowa City company which offers the services of a licensed pharmacist to remote locations in 12 other states, was the state's first telepharmacy pilot project.

"There's a lot of pharmacies that have closed in rural Iowa over the last couple of years, so this will bring back a lot of pharmacies," owner Roby Miller said. "It will also save a lot of pharmacies from closing."

Business Record

<http://www.businessrecord.com/Content/Default/AllLatestNews/Article/Telepharmacyexpansioncouldhelpruralpharmacisessurvive/3/248/72929>

## Telepharmacy Startups in Corporate America

### *Cardinal Health buys Iowa telepharmacy startup*

Cardinal Health, a large provider of health care services, recently purchased a four year old Iowa startup, TelePharm, that was establishing telepharmacies across rural parts of the state.

### *Corridor startup TelePharm snapped up by Cardinal Health*

Mr. Miller and his team developed a web based platform that allows pharmacists at a central location to:

- Oversee the dispensing of pharmaceuticals at remote locations.
- Communicate with customers



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Telepharmacy: The Emerging Telehealth Success

### **Cardinal Health buys Iowa telepharmacy startup**

Matthew Patane , mpatane@dmreg.com

Aug. 26, 2016

Cardinal Health, a large provider of health care services, has purchased a four year old Iowa startup that has focused on setting up telepharmacies across rural parts of the state.

Ohio based Cardinal health acquired TelePharm, based in Iowa City, in a deal that closed last month, representatives from both companies confirmed to the Register Friday.

TelePharm provides a web based way to offer remote pharmacy services, such as approving prescriptions. The company's platform also offers a type of video conferencing system so patients can speak to a pharmacist who is not physically present.

<http://www.desmoinesregister.com/story/tech/2016/08/26/cardinal-health-buys-iowa-telepharmacy-startup/89222040/>

### **Corridor startup TelePharm snapped up by Cardinal Health**

By Dave DeWitte

August 29, 2016

dave@corridorbusiness.com

With a quiet but lucrative sale to health care giant Cardinal Health, Iowa City's TelePharm has gained a strong partner in its goal to improve access to pharmacy

services and demonstrated that the Corridor's growing entrepreneurship support network is working.

Cardinal Health, a \$26 billion public company by market capitalization, acquired TelePharm in July for an undisclosed amount. TelePharm will maintain its headquarters in Iowa City, and its team of 18, including founder Roby Miller, will remain under Cardinal Health, which is based in Dublin, Ohio.

Mr. Miller and his team developed a web based platform that allows pharmacists at a central location to communicate with customers and oversee the dispensing of pharmaceuticals at remote locations. The system was used to open Iowa's first telepharmacy in 2012 in Victor, and has since helped retain or restore pharmacies in many rural communities, many of which can't support an onsite pharmacist.

<http://www.corridorbusiness.com/news/corridorstartuptelepharmsnappedupbycardinalhealth/>

## Telepharmacy Startups in Corporate America

*The business case for telepharmacy: Remote dispensing of medications — tomorrow's telepharmacy*

PipelineRx offers a telepharmacy technology platform called PowerGridRx.

- “This HIPAA-compliant solution is a remote telepharmacy service for next-generation medication order queue management. It’s an industry-first telepharmacy technology platform.”



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Telepharmacy: The Emerging Telehealth Success

### **The business case for telepharmacy: Remote dispensing of medications — tomorrow's telepharmacy.**

By Peter B. Nichol

OCT 4, 2016

CIO

PipelineRx offers a telepharmacy technology platform called PowerGridRx. This HIPAA-compliant solution is a remote telepharmacy service for next-generation medication order queue management. It’s an industry-first telepharmacy technology platform. The system provides 24/7, real-time medication order review and verification, improves medication order workflow visibility and operational control, and benefits from national coverage. What’s the bottom line? It has the potential to save better than 20% of costs when compared to in-house staffing. One of the benefits is that PowerGridRx allows the telepharmacist one processing view of orders from all IT systems, and across various hospitals and care settings. PowerGridRx creates a clear benefit not only for rural towns but also for traditional pharmacies that are looking to compete with the larger chains.

In February 2016, Dartmouth-Hitchcock (D-H) Medical Center selected the PowerGridRx technology platform to help optimize pharmacy workflow and improve patient care. Founded in 2009, today, PipelineRx has 120 folks supporting its operations, with \$14.92 million raised in funding.

## **PipelineRx™ Telepharmacy Services**

Our fully managed and staffed Telepharmacy Services option provides 24x7 access to experienced clinical pharmacists for expert order processing, including on-demand coverage. Click here to view our current service area.

This solution is designed for organizations that want to:

Provide 24x7, real-time medication order review and verification

Improve medication order workflow visibility and operational control

Comply with all regulatory requirements regarding order retention

Consolidate data for reporting and analysis

Access best practices and standardizations

Benefit from national coverage

[http://www.pipelinerx.com/solutions/pipelinerxremotetelepharmacservices/#.WOL\\_HI\\_nyuHs](http://www.pipelinerx.com/solutions/pipelinerxremotetelepharmacservices/#.WOL_HI_nyuHs)

<http://itelemedicine.com/wp-content/uploads/2015/07/telepharmacy-market11.jpg>

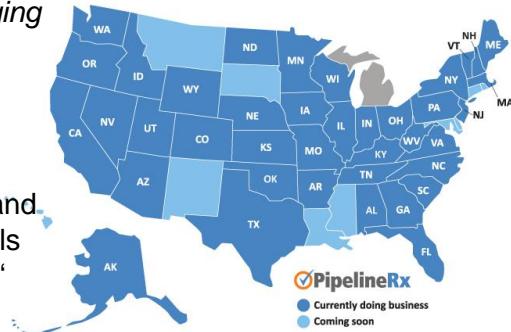
## Telepharmacy Startups in Corporate America

*Dartmouth-Hitchcock Center for Telehealth goes live with PipelineRx telepharmacy solutions*

- “To help optimize pharmacy workflow and improve patient care.”

*CPSI and PipelineRx Bringing Telepharmacy Services to Community Hospitals*

- “To offer a cutting edge telepharmacy solution designed to help small and rural community hospitals provide first class care.”



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Telepharmacy: The Emerging Telehealth Success

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[http://www.pipelinerx.com/solutions/pipelinerxremotetelepharmacservices/#.WOLHI\\_nyuHs](http://www.pipelinerx.com/solutions/pipelinerxremotetelepharmacservices/#.WOLHI_nyuHs)

### CPSI and PipelineRx Bringing Telepharmacy Services to Community Hospitals

CPSI Adds Remote Pharmacy Services to Aid Small and Rural Hospitals with Efficiency, Quality of Care

November 17, 2016 10:00 AM Eastern Standard Time

MOBILE, Ala. (BUSINESS WIRE) CPSI

(NASDAQ: CPSI), a leading provider of healthcare information solutions, today announced that the Company has teamed with PipelineRx to offer a cutting edge telepharmacy solution designed to help small and rural community hospitals provide

firstclass care. The remote pharmacy solution through PipelineRx will be sold by TruBridge, the member of the CPSI family that provides business, IT and management consulting and services.

<http://www.businesswire.com/news/home/20161117005175/en/CPSI-PipelineRx-Bringing-Telepharmacy-Services-Community-Hospitals>

<http://www.pipelinerx.com/assets/telepharmacy-map-03-22-2017.jpg>

<http://itelemedicine.com/wp-content/uploads/2015/07/telepharmacy-market11.jpg>



## Georgia Partnership for Telehealth

### 9<sup>th</sup> Annual Conference

#### Some Telepharmacy Takeaways

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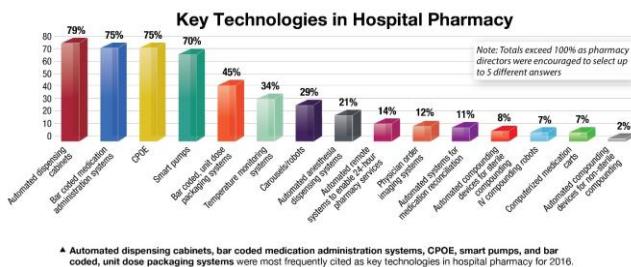
Telepharmacy: The Emerging Telehealth Success

## Telepharmacy Predictions

1. The continuing technical development of two-way interactive telepharmacy platforms will make implementing telepharmacy systems more affordable and sustainable.



2. Pharmacies with a strong technology infrastructure will be in a good position to implement telepharmacy solutions.



Telepharmacy: The Emerging Telehealth Success

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Picture:

[https://www.pppmag.com/documents/V13N8/images/ppp\\_1608\\_sopa\\_summary\\_chart1.jpg](https://www.pppmag.com/documents/V13N8/images/ppp_1608_sopa_summary_chart1.jpg)

Examining the role of new technology in pharmacy: now and in the future

[Supplements](#) 11 FEB 2014 By [Stephen Goundrey-Smith](#)

Pharmacists rely heavily on technology to help them do tasks that are often complex. Stephen Goundrey-Smith takes a look at what is available on the market

Over the past 40 years, information technology has had a major impact on the working lives of millions of people. Many industries have embraced computer technology because of the benefits of automated information processing. These include enabling routine, repetitive and monotonous tasks to be conducted with consistent accuracy; standardisation and consistent use of terminology and nomenclature; and mass customisation (the capacity of information technology to provide services to a large population, yet in a way that can be customised to the individual).

For prescribers and pharmacists, IT can enable the storage of structured patient records, facilitate the electronic prescribing, dispensing and administration of

medicines, automate the handling of medicines in the supply chain and provide tools for monitoring the efficacy and safety of medicines in use. IT can therefore improve patient safety, enable professionals to provide high quality care and help patients make the most of their medicines.

<https://www.pharmaceutical-journal.com/examining-the-role-of-new-technology-in-pharmacy-now-and-in-the-future/11134174.article>

## Telepharmacy Predictions

3. Telepharmacy implementation promises to be more successful than telehealth or telemedicine services:
  - The use of automated medication dispensing systems can improve dispensing efficiency and reduce costs.
  - The use of two-way video improves the accessibility of pharmacists for medication therapy management.
  - Telepharmacy systems with two-way video primarily support direct pharmacist to remote technician interactions within a pharmacy organization.
  - Telepharmacy services do not require health insurance reimbursement to be successful, so they are more sustainable up front.

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Telepharmacy: The Emerging Telehealth Success

Deployment of Pharmacy Automation Systems to Accelerate due to Increasing Deaths from Medication Errors

<https://www.transparencymarketresearch.com/pressrelease/pharmacy-automation-systems-market.htm>

With the presence of a large pool of both international and local players, the global market for pharmacy automation systems demonstrates a high degree of competition between participants, reports a new study by Transparency Market Research (TMR). The landscape, however, is consolidated, with CareFusion, AmeriSource, and Omnicell driving revenues for the most part. These companies together accounted for a share of nearly 50% in this market in 2011.

The increasing consolidation activities and little scope for product differentiation are likely to increase the rivalry between key players in the near future. The significant rise in the pharmacy automation start-up scenario in Asia Pacific and the Middle East is also expected to intensify this competition over the next few years, notes the study.

According to TMR, the global market for pharmacy automation systems presented an opportunity worth US\$4.7 bn in 2011. Expanding at a CAGR of 7.30% during the period from 2012 to 2018, it is likely to notch US\$7.8 bn by the end of the forecast period. Hospital pharmacy has emerged as the key end user of pharmacy automation

systems and is expected to remain dominant throughout the forecast period. Analysts project this segment to contribute US\$4.2 bn to the overall revenue generated in this market by the end of 2018.

### Five Technology Trends: Changing Pharmacy Practice Today and Tomorrow

AUGUST 20, 2015

Anthony Schueth, MS, William Hein, and Jeffrey Hull, RPh

<http://www.pharmacytimes.com/publications/directions-in-pharmacy/2015/august2015/five-technology-trends-changing-pharmacy-practice-today-and-tomorrow>

### WHAT'S TRENDING: TECHNOLOGY IN PHARMACY

<https://ajp.com.au/features/whats-trending-technology-pharmacy/>

### Three ways technology is improving pharmacy

June 05, 2017 By Donna Marbury

<http://managedhealthcareexecutive.modernmedicine.com/managed-healthcare-executive/news/three-ways-technology-improving-pharmacy>

## Questions?

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This presentation, with notes, is available at:

[www.imageresearch.com/telepharmacy](http://www.imageresearch.com/telepharmacy)