North Dakota Telepharmacy Model: Program Overview and Cost Effectiveness of Remote Services

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In 2000 the ND Board of Pharmacy reported that 26 rural communities had lost their community pharmacies & 12 more were at risk of losing them.
The NDTP was established in 2002 to address the crisis of rural pharmacy closings

**2002-2003:**
NDTP created to restore & retain pharmacy services
Temporary rules established
1st HRSA grant

**2003-2004:**
Permanent rules established
12 pharmacies restored or retained
2nd HRSA grant
2012: 81 telepharmacy sites
25 central sites  53 retail pharmacies
56 remote sites  28 hospital pharmacies

36 MUA counties in ND, 2 in MN
40,000 rural citizens served
$12.5 million to rural economy
50-60 new jobs
50% increase in prescription sales to retail operation
Telepharmacies must satisfy all rules & regulations of the State Board of Pharmacy

- Class K license required
- Allow a pharmacist to supervise a pharmacy technician at a remote site to process medications
- Mandatory verification and approval of each prescription/order by pharmacist
- Mandatory patient counseling (retail)
- Required monthly inspections
- Remote site visits
Technology allows pharmacists to communicate face-to-face in real time

- Videoconferencing equipment
- Document imaging camera
- Scanner or fax machine
- Personal computer
- LCD monitors (2)
- Sonic Firewall
- VPN hardware
- Mobile hospital cart
Cost of Technology

$11,000 Audio/Video Equipment
$1,100 PC Computer
$800 2 LCD Monitors
$1,200 Document Imagining Camera
$200 Networking Equipment for VPN
$200 Networking Equipment for Wireless
$350 Cabling & USP Power Supply
$1,700 Connectivity for 1 year
$750 Equipment Installation

$17,300 TOTAL COST/site
(Add $5,000 for Hospital Mobile Cart)
The pharmacist remains the primary health care provider in the delivery of pharmacy services

- Performs final check of technician product preparation
- Performs medication profile review
- Performs final order/prescription verification and approval and releases medication
- Provides professional consultations to patients, nurses, and physicians
- Remote site visits
The pharmacy technician is perhaps the most important element in the telepharmacy program

- Registered with Board of Pharmacy
- ASHP accredited program or equivalent
- Minimum of one year experience in dispensing prescriptions
The pharmacist dispenses the medication with the assistance of the pharmacy technician/nurse

- Obtains medication order/prescription
- Enters medication order/prescription into computer
- Performs product selection, preparation, packaging, and labeling
- Provides digital images of medication order/prescription, drug, and label for verification and approval by pharmacist
In ND pharmacists provide their services to rural hospitals via several different delivery models:

- Community pharmacist provides pharmacy services to rural hospital
- Hospital telepharmacy network – rural hospitals share pharmacist staffing
- Hospital pharmacist delivers services from home
- Mobile telepharmacy cart
- Central pharmacy hub site provides clinical pharmacy services to rural hospitals
Central order entry sites provide 24/7 pharmacist coverage to CAHs on a contract basis

- Review and verify physician orders
- Facilitate immediate medication adjustments and interventions
- Observe medication preparation
- Monitor the “Five Rights”
- Provide face-to-face patient education

Consult face-to-face with physicians, nurses, and pharmacy technicians

Facilitate standardization of medication protocols
Are remote pharmacy services cost effective?

Cost effectiveness analysis: comparing the relative costs and effects of 2 or more courses of action

In the field of health services: the ratio of the cost of the intervention (resources expended) to a relevant measure of its effect (a gain in health)

Asking “Is this intervention a good value?” requires a value judgment
The answer is “maybe.”

Producing conclusive findings relative to the cost effectiveness of telepharmacy is dependent upon (1) the amount of telepharmacy being practiced and (2) the availability of data for analysis and publication.

More telepharmacy – more data – more publications – more understanding – more telepharmacy
Regulation has a great effect on the practice of telepharmacy

An expansion of telepharmacy across the country will require:

- Removing regulatory barriers on the state and federal level
- Increasing in the number of states with regulations allowing for the evidence-based practice of telepharmacy
Findings from recent studies conducted on the North Dakota telepharmacy model

- telepharmacy is financially viable in a community pharmacy setting
- patient satisfaction with telepharmacy technology is high
- rates of medication mistakes in remote community telepharmacies are comparable to those of traditional community
- the hospital telepharmacy network model is successful in identifying and resolving quality related events in CAHs


Do remote community telepharmacies have higher medication error rates than traditional community pharmacies? Evidence from the North Dakota Telepharmacy Project. *J Am Pharm Assoc.* 2011; 51:48-58.

Medication errors in rural critical access hospitals in the North Dakota Telepharmacy Project (manuscript)
www.ndsu.edu/telepharmacy

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