

# Pharmacy Closures in One Pharmacy Towns: Identification, Implications and Solutions

*Andrew P. Traynor, Pharm.D., BCPS*

*Assistant Professor*

*Assistant Director, Ambulatory Care Residency Program*



**College of Pharmacy**

*Twin Cities ♦ Duluth*

## Learning Goals

- List identified factors for risk of loss of pharmacy services in rural America
- Discuss the impact of pharmacy closure in rural America
- Identify potential solutions to maintain local access to medications and pharmacist services.

## Questions to Ponder

- Thinking of a rural community with one pharmacy, what would be the impact of the town losing its pharmacy?
- Thinking of a rural community that doesn't currently have a pharmacy, what impact would having a pharmacy have on its vitality?

## Plum City, WI Population -611



## Adrian, MN – Population ~ 1200



*Mel Kroon packs up pharmacy supplies on his last day of business as a drugstore in the town of Adrian. (MPR Photo/Mark Steil)*

## A Fragile Environment

- Challenges to the ability to deliver pharmacy services in rural areas
- Cumulative effects
  - Nine of 38 pharmacy closures in rural MN, resulted in a community with no local pharmacy access from 1996-1999.
  - 158/998 closures nationally from 5/2006 – 4/2008 resulted in loss of only pharmacy
  - 11 MN closures resulting in no local pharmacy and pharmacist access since August 1, 2003

## MN Closures 2003-2009

Town	Data Year	Pop.	Owner Age	Yrs to retire	Nearest Pharm.	Number of Annual Rxs	Rx Dept. Revenue
1	2006	1200	53	9	16	27,583	<\$1.5M
2	2006	1300	66	0	20	10,000	<\$1.5M
3	2006	2300	53	7	10	49,695	\$2.5-3.5M
4	2003	400	71	-6	30	7,000	<\$1.5M
5	2003	1200	60	2	28	28,840	<\$1.5M
6	2003	2400	69	0	12	NR	<\$1.5M
7	2006	2100	68	2	10	35,000	\$1.5-2.5M
8	2003	600	68	0	8	14,000	<\$1.5M

*The average independently owned retail pharmacy dispensed > 61,000 prescriptions in 2007.*

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## Impact to Rural Communities with Closure

- Loss of access point for medications and services of a pharmacist
  - Prescription claims decrease<sup>1,2</sup>
  - Travel distance increases<sup>3</sup>
  - Patient satisfaction decreases<sup>2</sup>
- Loss of a “Main Street” business
- Impact on delivery of health services
  - Loss of pharmacist services
  - Utilization of health services in other communities

1. Xiao H, et. al. Am J Manag Care, 2000

2. Sunderland VB, et. al. Aust and N Zeal Hlth Pol. 2006, 3:8

3. Xiao H, et. al. J Soc Admin Pharm, 2000

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## **How many people will be impacted by one pharmacy town closure?**

## **Service Area Mapping**

- Market area analysis is common in retail to assess supply and demand
- May utilize a variety of methods with GIS
  - Given that the distance of many of the one pharmacy towns we surveyed is greater than 10 miles, transport distance was chosen to define a service area

## Service Area Mapping Methodology

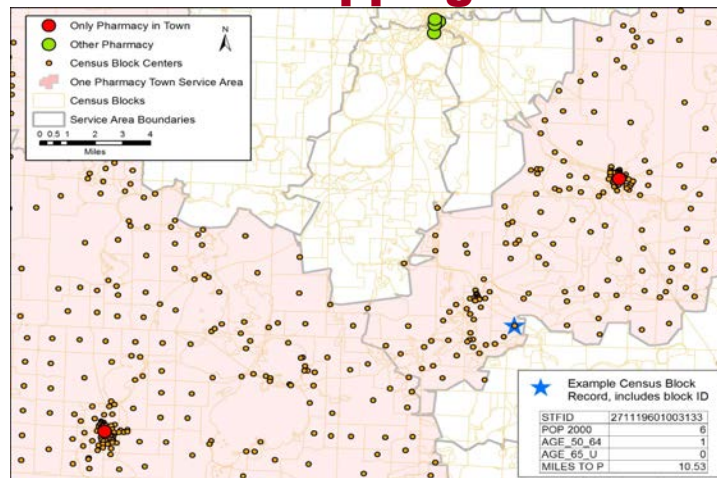


### Road Network

A road network was built using tools in Network Analyst. The roads data used in this study are from ESRI Streetmap, USA.

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## Service Area Mapping Methodology



### Census Block Center Points

Overlaid service areas with census points to identify population and age-related demographics

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## Minnesota Service Area Map



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## Service Area Characteristics

State	Total Census Pop.	Service Area Pop.	Service Area: Community
Arizona	75,431	236,967	3.14
Arkansas	216,272	358,314	1.66
Iowa	239,453	617,298	2.58
Maine	328,398	534,475	1.63
Minnesota	216,132	1,067,533	4.94
Mississippi	86,356	398,120	4.61
Montana	64,142	190,770	2.97
North Carolina	243,266	863,757	3.55
West Virginia	99,434	379,755	3.82
Wyoming	17,577	45,548	2.59
<b>Totals</b>	<b>1,370,461</b>	<b>4,692,537</b>	<b>3.42</b>

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## Service Area Characteristics

State	Pop 50-64	Pop>65	Sq. miles % of state
Arizona	39,021	31,896	35.8%
Arkansas	61,764	52,972	37.4%
Iowa	96,999	104,227	47.5%
Maine	93,543	76,493	73.7%
Minnesota	175,356	167,706	60.8%
Mississippi	60,830	49,779	27%
Montana	34,163	27,124	54.4%
North Carolina	146,533	108,936	24.3%
West Virginia	68,574	55,013	31.6%
Wyoming	8,275	6,435	23.3%
<b>Totals</b>	<b>746,037</b>	<b>648,685</b>	<b>36.2%</b>

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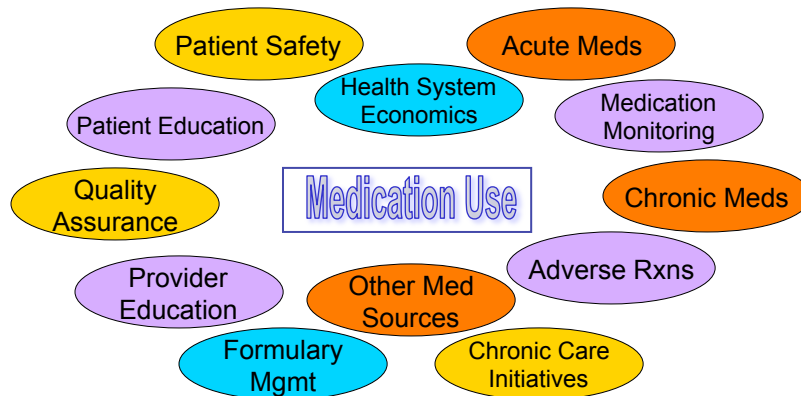
## Solutions Implemented to Date

- Medication Access
  - Telepharmacy
  - Automated Dispensing Technologies
  - Mail Order
- Pharmacy Services Access
  - Innovative Practice Models
  - Establish Responsibility for Medication Use

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## Medication Use in a Community



## Challenges

- How do we address medication and pharmacy services access concurrently?
- How will policy address both?
- What do we need to know more about yet?
  - How does pharmacy service loss impact patient care?
  - With new patient care models proposed, to what degree will disparities be created because of no pharmacy presence?