

Development of the U.S. Pharmacy GIS

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Presentation Purposes

- To whet your appetite.



Presentation Purposes

- To pick your brains and feed upon your expertise.



Project Goals

- To establish an affordable, easily accessible and comprehensive geographically registered pharmacy database for researchers.
- Database would include:
 - All U.S. pharmacies (50,000+)
 - Select demographic and community data at varying levels of geography
 - Ability to classify pharmacies by type and by relation to multiple definitions of rurality.
 - Interactive, web-based mapping and report generating capability.

Data Collection Process

- Development of database to house basic information from state board of pharmacies (BOP)
- Establish contact with each BOP until data is received and on file

Data Preparation

- Upon receipt of each data file:
 - Any text files or multiple excel files are merged into one Excel document.
 - Data cleaning
 - Data coding

Data Cleaning

- There is not a universal standard format by which state pharmacy data is received, so the following steps have used to establish a more uniform and consistent dataset:
 - Each column label is changed to reflect the same name from one file to the next
 - Each column is placed in the same order by column heading from one column to the next
 - Extraneous information is deleted

Data Coding

- Each pharmacy receives a code based on the following criteria:
 - 1 = Institutional
 - 2 = Independent
 - 3 = Chain
 - 4 = Other

Data Collection Costs and Comparisons

- Total cost for data obtained to date is approximately \$2,500
- Approximate GRA time spent collecting data to date is about 300 hours or \$4,500
- Total cost to date is \$7,000
- Cost to obtain data from a third party averages about \$25,000
- Data Collection Savings is approximately \$18,000 to date

Data Collection Process

- Initial process began with development of database to house basic information from state board of pharmacies (BOP), which include:
 - Contact Information-phone and email
 - Board of Pharmacy web address
 - Data retrieval status
 - Associated collection costs

Data Collection Process (cont.)

- First point of contact (FPC) with each BOP:
 - Phone contact with one or more of the following: BOP Director, Data Coordinator, Program Specialist, etc.
 - If FPC by phone unsuccessful, then a formal request was sent to the BOP Director
 - Follow-up through email or phone until information is ordered and received

Data Collection Process (cont.)

■ Data Retrieval:

- Data for each state has been ordered through one of the following methods:
 - Online download into a text delimited or spreadsheet format file
 - Official BOP order form faxed, emailed, or mailed with formal letter of request and payment (if applicable)

Data Collection Process (cont.)

- If data were not obtained via an online download, then they have been received in the following formats:
 - Email
 - Hard Disk Copy

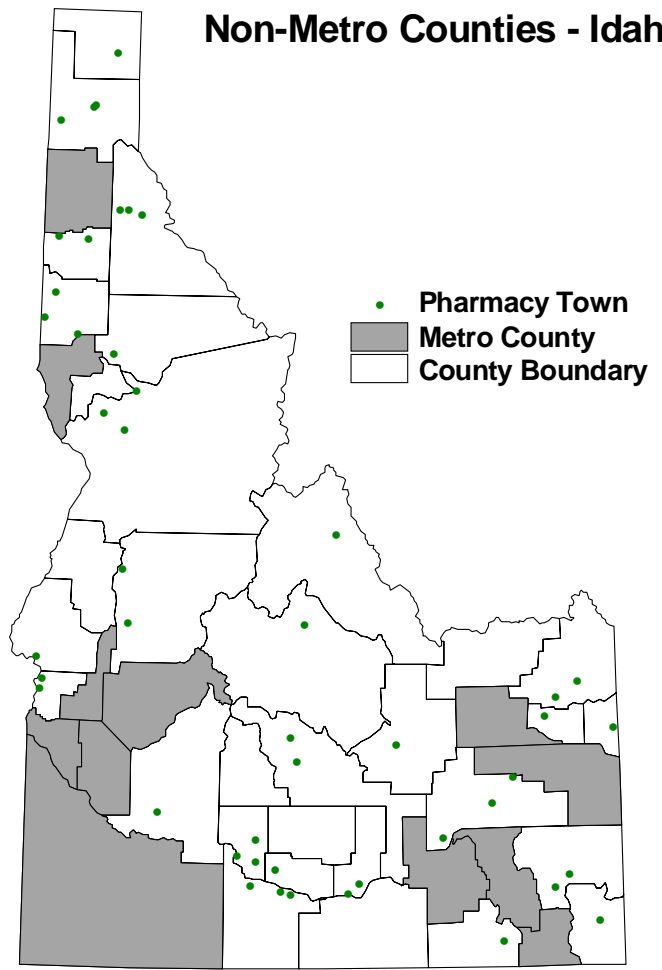
GIS Construction

- Geographic layers
 - States
 - Counties
 - Census Boundaries
 - ZIP Code Tabulation Areas
 - Block Groups
 - Tracts
 - Congressional Districts
 - Multiple Federal Definitions of Rural and Frontier
 - RUCA
 - RUCC
 - OMB
 - Census
 - HRSA
 - TRICARE
 - FCC
 - Frontier Education Center
 - Populated Places

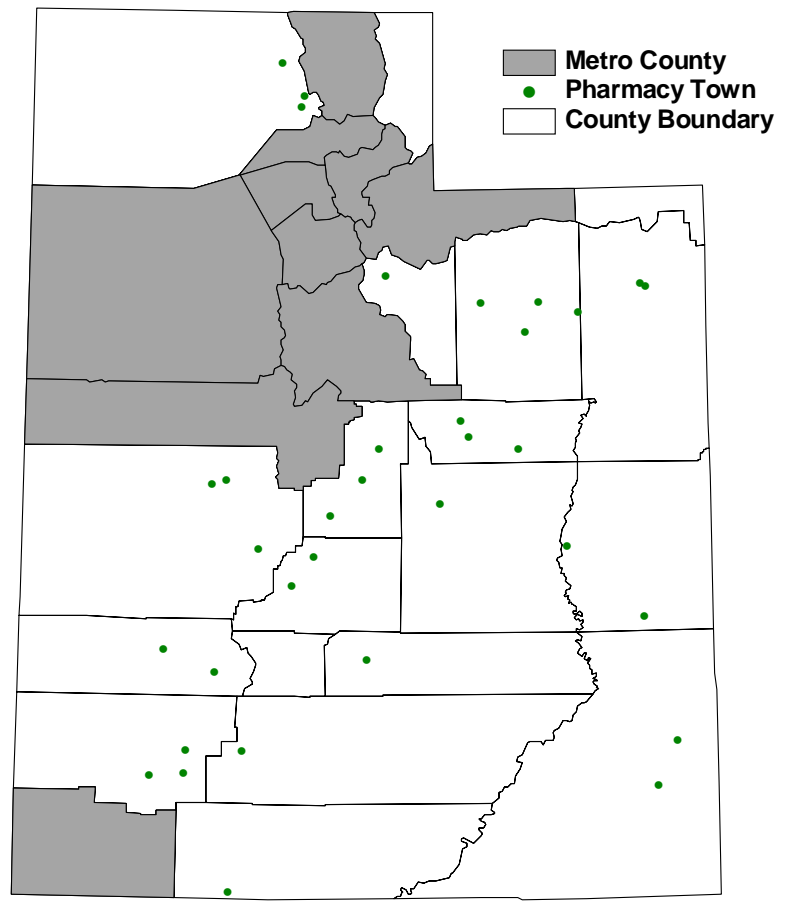
GIS Construction

- Data linkages
 - Requested demographic and community information
 - Center for Medicare and Medicaid Services (CMS) Pharmacy Contract Files
 - CMS Medicare Beneficiary Files

Places with Phamacies in Non-Metro Counties - Idaho

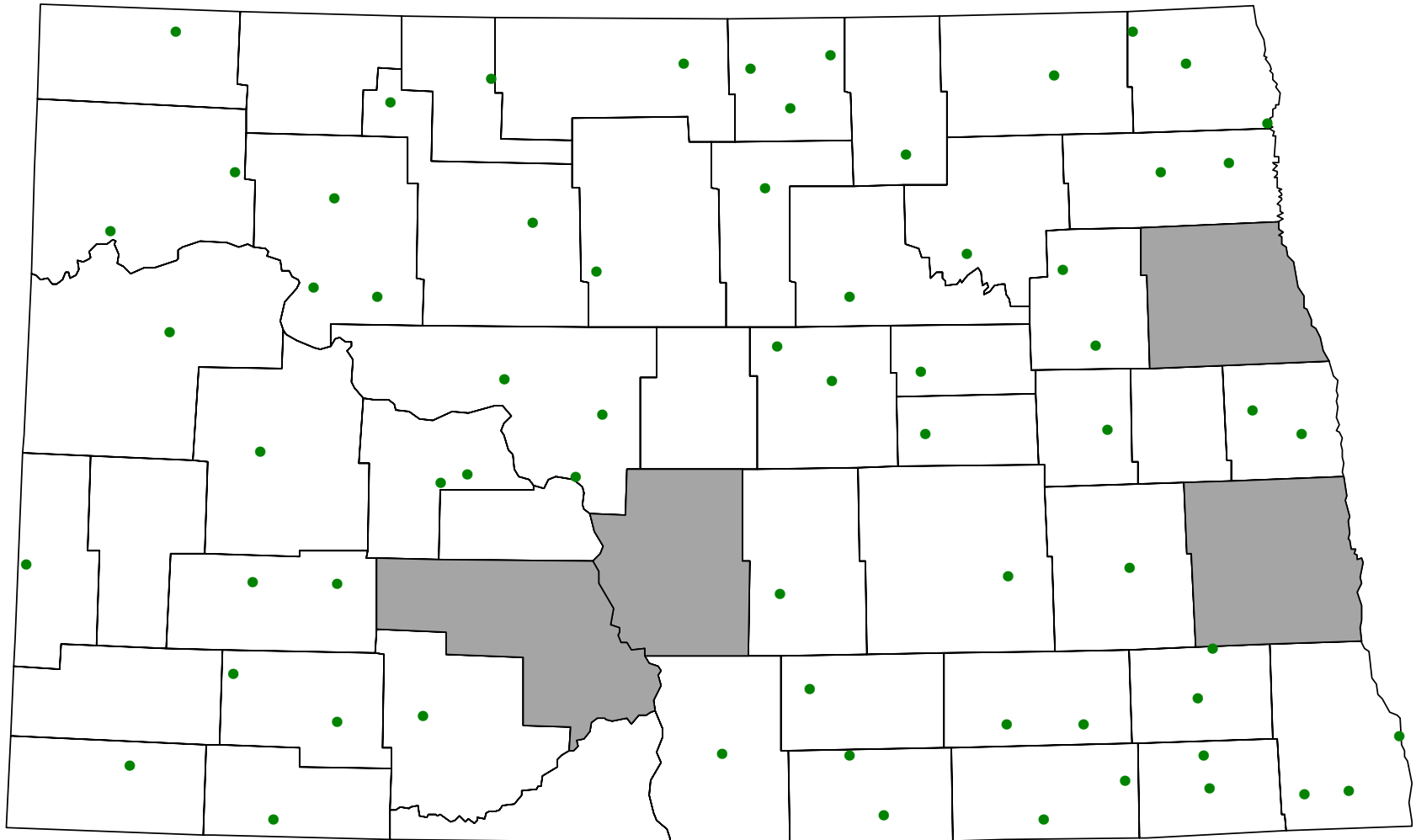


Pharmacy Locations in Non-Metro Counties - Utah



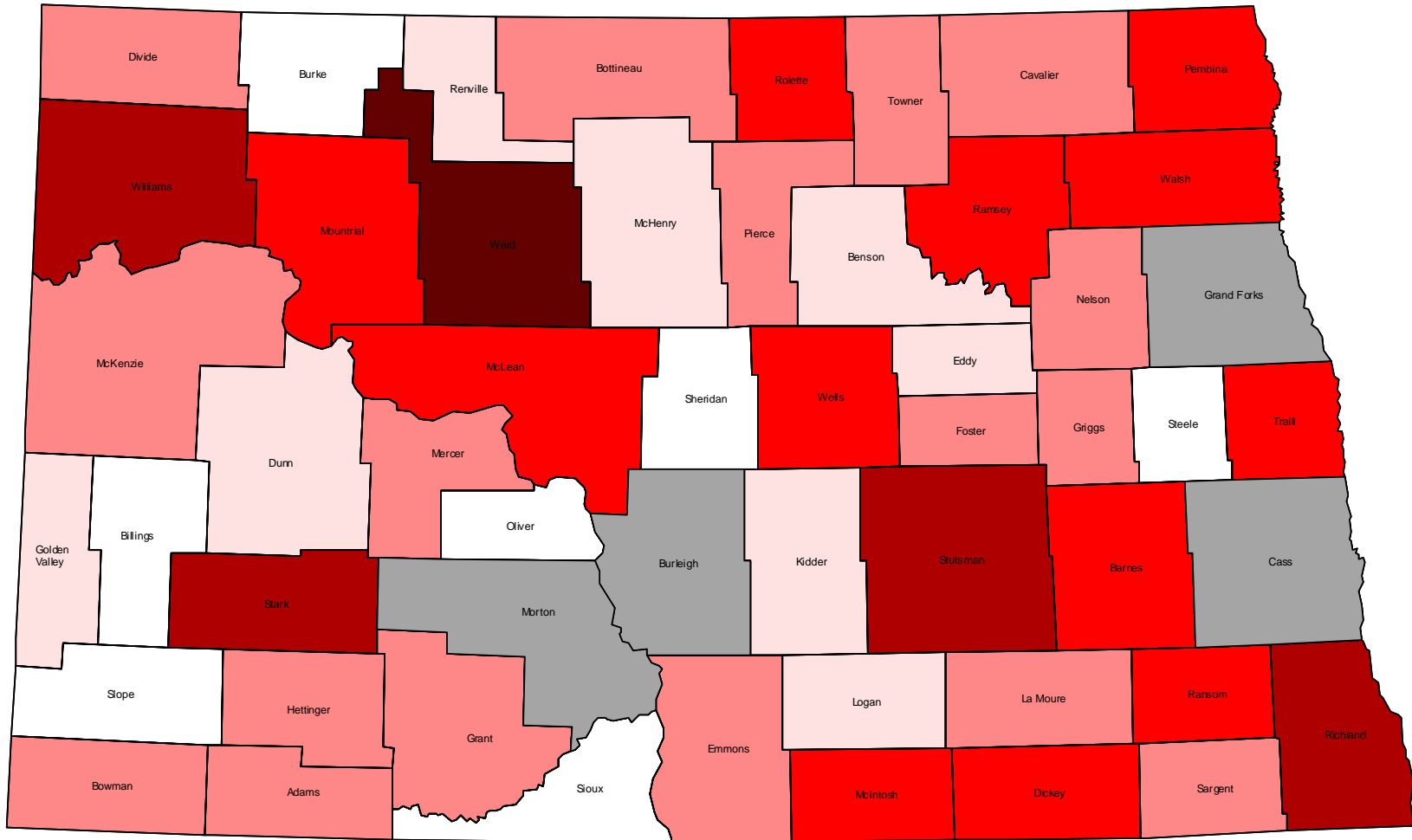
Source: U.S. Bureau of Census, 2003. Utah Board of Pharmacy.

Places with Pharmacies in Non-Metro Counties - North Dakota

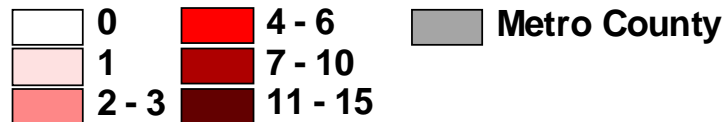


● Pharmacy Town
■ Metro County

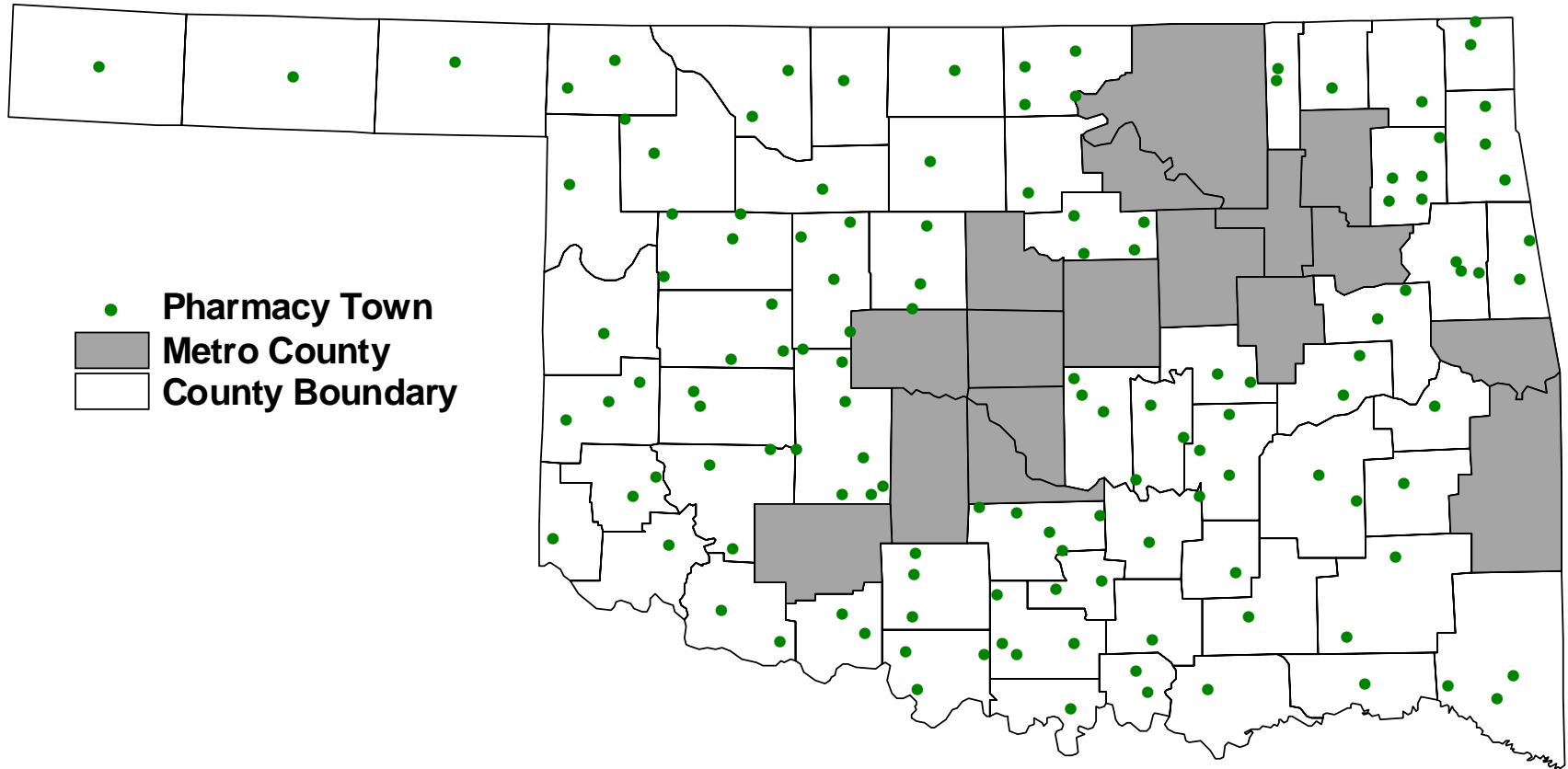
Number of Pharmacies per Non-Metro County - North Dakota



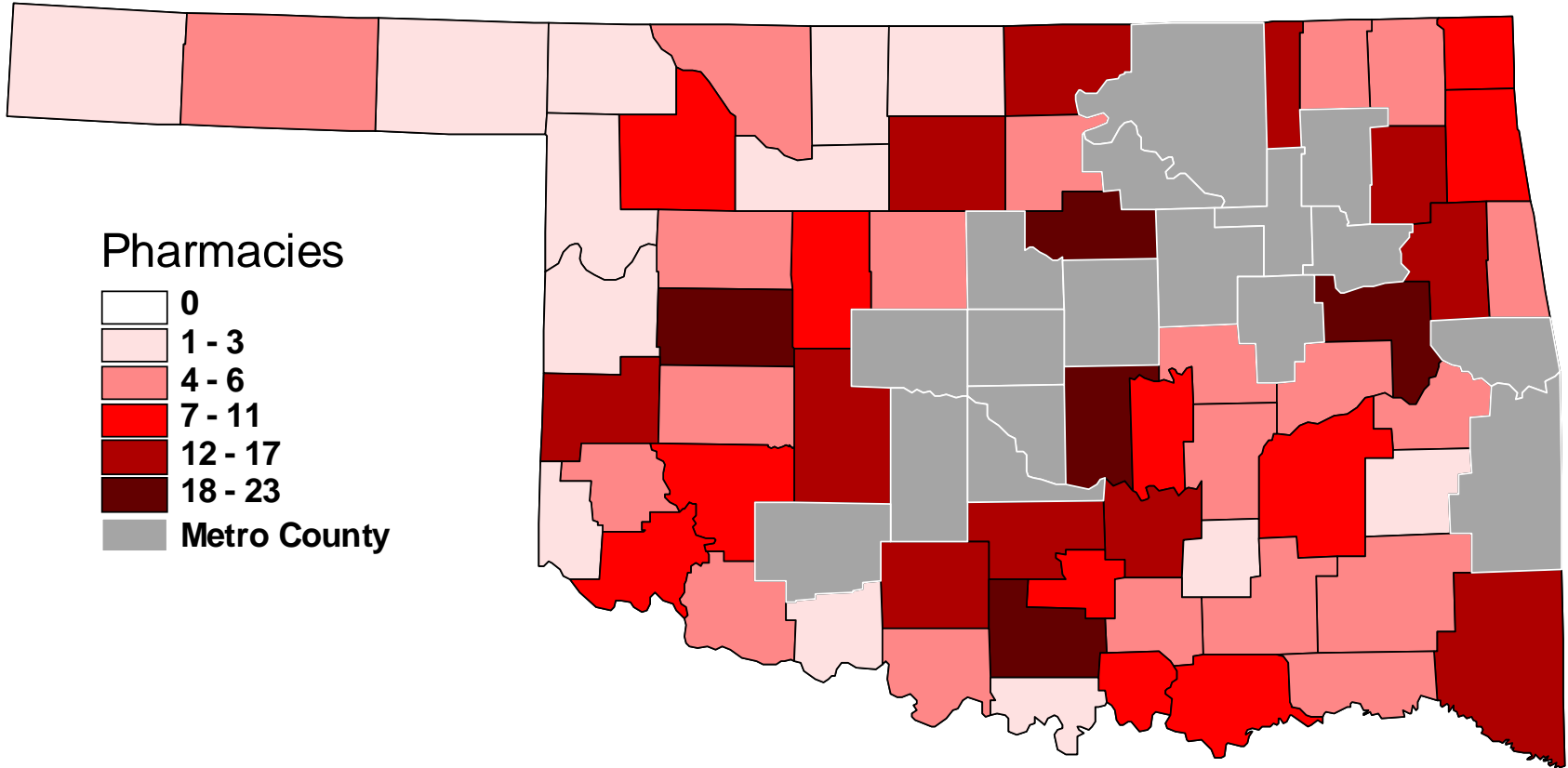
Pharmacies



Places with Pharmacies in Non-Metro Counties - Oklahoma



Number of Pharmacies by Non-Metro County - Oklahoma



Initial Display Issues

- Locational overlap
 - Multiple pharmacies in one community
 - Different types of pharmacies within communities.
- Rural routes and P.O.Box's

Initial Applications for the GIS

- Availability of pharmacy insurance in rural areas
- Types of programs available
- Pharmacy openings and closures over time
- # of Pharmacies by rural typology
- Pharmacy accessibility in relation to community characteristics

Future Home and Uses for the GIS

- Based on a researcher accessible web server
 - User ID access protocols?
 - Apply for free access?
- Policy research
- Policy development

Supporting Research Institutions

- North Carolina Rural Health Research and Policy Analysis Center, University of North Carolina, Chapel Hill, N.C.
 - Topic of Concentration: Federal Insurance Programs (Medicare and Medicaid) and Their Effect on Rural Populations and Providers
 - Past and current research includes:
 - Describing Geographic Access to Physicians in Rural America Using Statistical Applications in GIS
 - Development of a New Methodology for Dental Health Professional Shortage Area Designation
 - Impact of The Medicaid Budgetary Crisis on Rural Communities: A 50-State Survey

Supporting Research Institutions

- RUPRI Rural Health Panel

- The Rural Policy Research Institute's Rural Health Panel provides decision makers with timely, objective, and expert analysis of the implications of policy for rural health.

- **Rural Health Panel - People**

- Andrew F. Coburn
PROFESSOR
Maine Rural Health Research Center
Edmund S. Muskie Institute of Public Affairs, University of Southern Maine [A.](#)
- Clinton MacKinney
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Funding Organizations

U.S. Department of Health
and Human Services



HRSA

Rural Health Policy

- Federal Office of Rural Health Policy – Health Resources and Services Administration
 - www.ruralhealth.hrsa.gov/



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