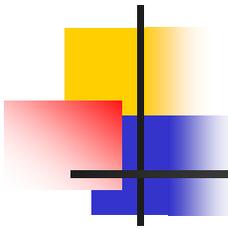


Tracing Methods for Obtaining Residential Street Addresses for Non-Street Mailing Addresses in State Cancer Registry Records

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PURPOSE OF CASE ADDRESS TRACING STUDY

Objective

To explore methods for assigning a street address at diagnosis for cancer registry records originally containing a non-street mailing address, such as a PO box or rural route number.

Rationale

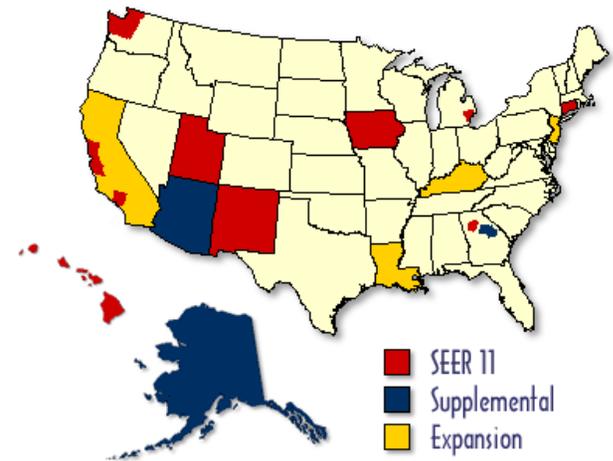
The quality of geospatial information in health datasets will influence the level of geographic analysis at which environmental public health tracking can be performed. Geocoding health datasets to coordinate location and area level, such as census tract, requires a valid street address. Default geocoding methods, such as zip code centroid assignment or random allocation, are frequently employed in the absence of a street address, however this likely will introduce misclassification error into tracking analyses.

Cancer Registration in New Mexico

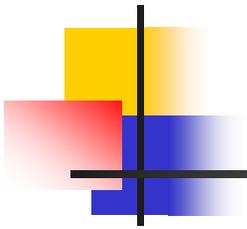


- **New Mexico Tumor Registry**

- NCI/SEER registry since 1973
- Statewide, population-based
- New Mexico residents at diagnosis
 - All invasive cancers (excl. non-melanoma skin)
 - Non-invasive (*in-situ*) breast cancers
 - Benign brain tumors (1996-2002)
- Information collected on
 - Patient demographics (including address at diagnosis)
 - Tumor characteristics
 - Treatment
 - Vital status (active & passive follow-up)



SEER= Surveillance,
Epidemiology, & End Results



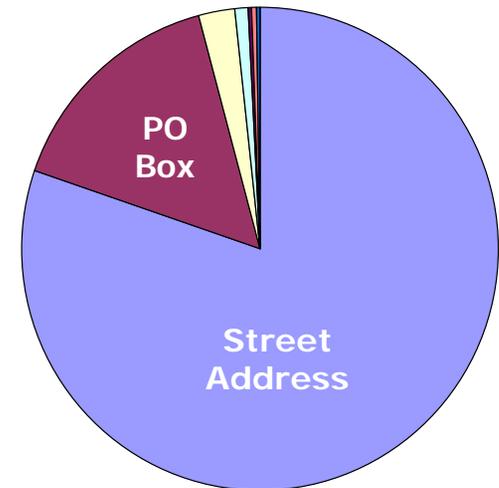
Types of Geospatial Information That Occur in New Mexico Cancer Registry Case Records

- **Street Address** (123 S. Main St., Hobbs, NM 88240)
- **Facility** (XYZ Nursing Home, Hobbs, NM 88240)
- **Post Office Box** (P.O. Box 345, Hobbs, NM 88241)
- **Rural Route** (RR 1 Box 123, Hobbs, NM 88240)
- **General Delivery** (General Delivery, Hobbs, NM 88240)
- **Hwy Contract Route** (HCR 123, Box 123, Hobbs, NM 88240)
- **General Location** (5 miles S MM 189, Hobbs, NM 88240)
- **City/Zip code only** (Hobbs, NM 88240)
- **Native American Tribal/Chapter code** (474-17-35 084)

*** Street address information is not collected on Native American cancer cases in New Mexico.*

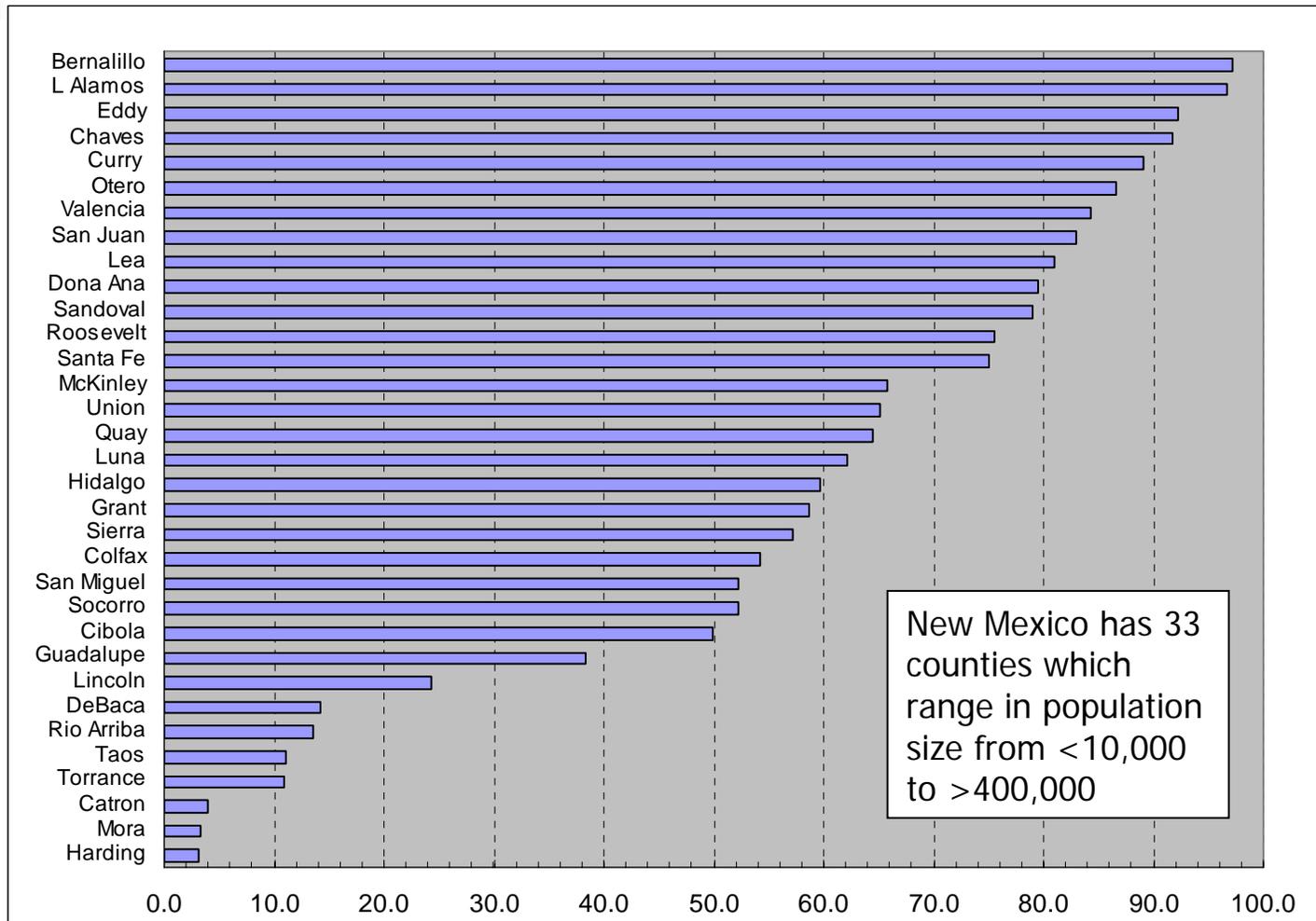
Distribution of Address Types in 1988-2001 New Mexico Cancer Registry Case Records

ADDRESS TYPE	NUMBER	%
Street Address	68517	80.3
Post Office (PO) Box	13343	15.6
Rural Route	2150	2.5
Highway Contract Route	670	0.8
Facility Name	281	0.3
General Delivery	212	0.2
City/Zipcode only	183	0.2
General Location	13	<0.1
TOTAL¹	85369	100.0

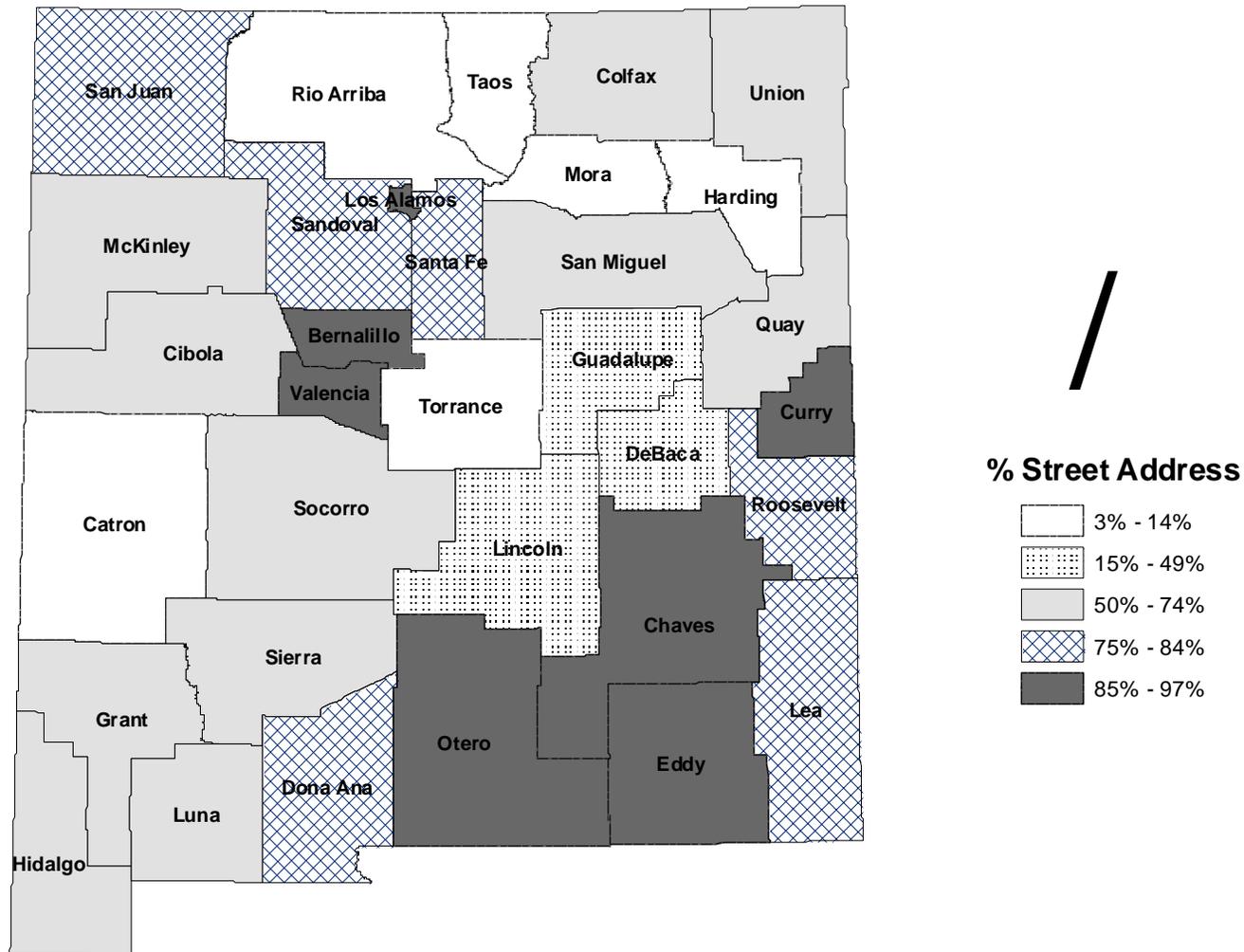


¹ Excludes Native American cases. Also excludes 618 non-Native American cases lacking address information ("New Mexico" only).

Percent (%) Street Addresses in 1988-2001 New Mexico Cancer Registry Case Records by County



Percent (%) Street Addresses in 1988-2001 New Mexico State Cancer Registry Case Records by County



Percent (%) Street Addresses in 1988-2001 New Mexico Cancer Registry Records

Cities >200 Cases

CITY	TOTAL CASES	STREET ADDRESS		CITY	TOTAL CASES	STREET ADDRESS	
		Number	%			Number	%
BOSQUE FARMS	235	232	98.7	SILVER CITY	1062	848	79.8
RIO RANCHO	2483	2441	98.3	PORTALES	775	618	79.7
ALBUQUERQUE	29088	28592	98.3	RATON	535	413	77.2
LOS ALAMOS	1214	1172	96.5	TUCUMCARI	518	391	75.5
LAS CRUCES	4771	4583	96.1	LOVINGTON	633	471	74.4
CARLSBAD	2303	2184	94.8	BLOOMFIELD	452	335	74.1
ROSWELL	3508	3312	94.4	GRANTS	522	371	71.1
HOBBS	1809	1706	94.3	LAS VEGAS	938	660	70.4
ALAMOGORDO	1785	1680	94.1	DEMING	1416	928	65.5
ARTESIA	866	808	93.3	SOCORRO	496	314	63.3
FARMINGTON	2008	1871	93.2	TIJERAS	341	191	56.0
CLOVIS	1899	1769	93.2	ANTHONY	403	197	48.9
BELEN	1234	1086	88.0	CORRALES	368	154	41.8
AZTEC	603	508	84.2	RUIDOSO	592	229	38.6
LOS LUNAS	1246	1048	84.1	BERNALILLO	349	122	35.0
T OR C	754	626	83.0	EDGEWOOD	375	121	32.3
TULAROSA	294	243	82.7	ESPANOLA	605	186	30.7
GALLUP	697	576	82.6	TAOS	530	110	20.8
SANTA FE	5196	4237	81.5	MORIARTY	269	26	9.7
CLAYTON	211	170	80.6	REMAINDER OF STATE	11986	2988	24.9

Address Tracing Pilot Study – Study Cases

Study Population (Cases with non-street address)

Cases	Number	Time Period
All cancers	322	1998-2002 (5 yrs)
Female breast	151	1988-2002 (15 yrs)

Distribution of 322 Study Cases by Primary Site		
SITE	No.	%
Breast	62	19.3
Prostate	46	14.3
Lung	33	10.2
Colorectal	28	8.7
Melanoma of skin	26	8.1
Urinary Bladder	16	5.0
All other sites	110	34.2
TOTAL	322	100.0

Address Tracing Pilot Study – Methods

Manual review of registry records

- Case abstract
- Pathology report
- Physician follow-up form
- Autopsy report
- Death certificate

Key Information

- Patient/spouse name
- Telephone number at diagnosis
- Current patient address
- Phone/address on physician follow-up form
- Address on death certificate/autopsy report



Address Tracing Pilot Study – Methods

Primary tracing resources

- Reverse directories (e.g. Polk)

Phone number ⇒ Name / Address

Name ⇒ Phone number / Address

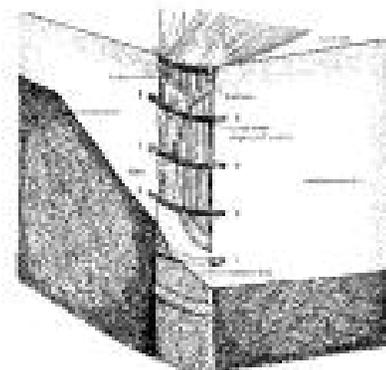
Address ⇒ Name / Phone number

- Local phone books

Albuquerque

East Mountains Directory

- Internet (e.g., <http://www.switchboard.com>)



Switchboard[®]

It's the Yellow Pages. *Electrified.*SM



RESULTS OF ADDRESS TRACING FOR 1998-2002 BERNALILLO COUNTY CANCER CASES WITH NON-STREET ADDRESSES (N=322)

RESULTS OF ADDRESS TRACING FOR 1998-2002 BERNALILLO COUNTY CANCER CASE RECORDS WITH NON-STREET ADDRESSES						
Area	Street Address		No Street Address		Total	
	No.	%	No.	%	No.	%
Bernalillo County	190	59.0	132	41.0	322	100.0
Albuquerque	124	67.0	61	33.0	185	100.0
East Mountain Area	66	48.2	71	51.8	137	100.0

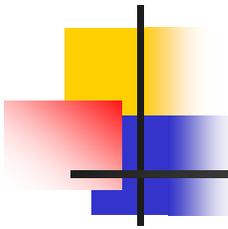
FREQUENCY DISTRIBUTION OF PRIMARY TRACING SOURCE		
Source	No.	%
TOTAL	190	100.0
Death Certificate	83	43.7
Patient Phone	43	22.6
Reverse Directories	37	19.5
Phone Books	16	8.4
Case Abstract	6	3.2
Internet	3	1.6
Follow-Up	2	1.1

Time Requirement
~ 40 person hours
(.12 person hours /record)

RESULTS OF ADDRESS TRACING FOR 1988-2002 BERNALILLO COUNTY BREAST CANCER CASES WITH NON-STREET ADDRESSES (N=151)

RESULTS OF ADDRESS TRACING FOR 1988-2002 BERNALILLO COUNTY FEMALE BREAST CANCER CASE RECORDS WITH NON-STREET ADDRESSES						
Area	Street Address Found		No Street Address Found		Total	
	No.	%	No.	%	No.	%
Bernalillo County	77	51.0	74	49.0	151	100.0
Albuquerque	54	66.7	27	33.3	81	100.0
East Mountain Area	23	32.9	47	67.1	70	100.0

FREQUENCY DISTRIBUTION OF PRIMARY TRACING SOURCE		
Source	No.	%
TOTAL	77	100.0
Reverse Directories	28	36.4
Death Certificate	17	22.1
Phone Books	12	15.6
Patient Phone	9	11.7
Case Abstract	7	9.1
Internet	3	3.9
Follow-Up	1	1.3



Conclusions

- **Significant geographic variability exists in the quality of geospatial information in New Mexico state cancer registry case records.**
- **Review of registry records in a historical cohort of cases under vital status follow-up yields traceable street addresses for 40%-60% of cases initially entered in the registry with a non-street address at diagnosis.**
- **Address tracing will likely be most efficient in urban areas with better defined road structure and for cancers of greater relative lethality.**
- **Records review for street address tracing is time intensive and may be only practical for targeted analysis needs.**