About the Zip Code Data for Public Health Research

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1. Introduction

For about one half century, the United States Postal Service (USPS) has used the five digit Zip Codes to organize mail for delivery. Despite popular usage ("That zip code is a great place to live!"), a five-digit zip code is not a place *per se*, but rather a set of one or more delivery points.

Tables shared here are based on licensed USPS data disseminated for use starting June 2011. Four codes are used here to denote the zip codes by official USPS type:

D – Delivery area codes referring to a set of addresses in a general area for residential and business delivery)

P – PO Only area codes for which generally no or very few outside deliveries are made from the associated USPS facility (which may rent boxes to residential and business customers there.)

M – Military area codes used to consolidate mail for delivery to deployed military personnel.

U – Unique area codes generally assigned, for example, to single large volume business and government organizations.

To the extent possible, cancer case abstracting calls for the postal delivery address of patients at the times of their diagnoses. While boxes are often available for rent at D-type Post Office facilities, a P-type zip code is normally a less than desirable attribute of this particular address data, as are M-type zip codes when a more standard residential diagnosis-time address exists. Caution is to be taken, also, with U-type zip codes although some patients do reside, for example, in Veterans Administration housing exclusively assigned U-type zip codes.

2. The Tables

The following five tables have been derived from current USPS datasets and may be used in various ways to check the validity of zip codes in patient addresses individually and as they correctly correspond with USPS-approved locality ("city") names and counties in which mail is officially delivered via specific zip codes.

The Wisconsin Cancer Reporting System prepares revisions of working datasets promptly on a monthly basis as authoritative USPS reference data is received.

Three tables are available within a Microsoft Access 2003 database (USPS_Zips.zip), and separately in .dbf IV format (ZipsData.zip.)

a) ZipCodes

Records are of all zip codes officially in current use by the USPS. In the official June 2011 dataset, there are 41,755 active zip codes listed. These distribute as 29,764 type D codes, 9,346 type P codes, 2,147 type U codes, and 498 type M codes. The status and selected attributes of each zip code is indicated by the following seven fields:

Zip5   The five digit zip code

TypeZip   D=residence/business delivery, P=PO only, M=military mail, U-unique delivery

PrefCity   USPS-preferred locality/city name

PO_State   State in which PO facility is located

PO_County   County FIPS code for PO facility location

AliasCity   Count of USPS-accepted, but not preferred locality/city names

DeliveryCo   County to which external deliveries are made (or indication
              of multiple county delivery)

b) ZipCity

Records are of all zip codes officially in current use by the USPS. Of the 41,755 active zip codes listed, 8,880 are characterized by multiple USPS-accepted locality/city names. The ZipCity table details all USPS-valid combinations of zip code and locality/city. The records comprise the following four fields:

Zip5   The five digit zip code

IsPrefName YES or NO

NameCity   A USPS-acceptable locality/city name for the zip code

State   The state location of NameCity

c) ZipCnty

Records are of all zip codes officially in current use by the USPS in combination with USPS-accepted locality/city names. Of the 41,755 active zip codes listed, 9,961 are characterized by delivery service to multiple counties. The ZipCnty table details all USPS-valid combinations of zip code and county served. The records comprise the following three fields:

Zip5   The five digit zip code

State   State location of deliveries using this zip code

CoFIPS   County (FIPS code) location of deliveries using this zip code

d) CiStZiCo

The CiStZiCo table details all USPS-valid combinations (n = 60,097) of zip code, USPS accepted name of city or locality, and county served. This table has been found at the Wisconsin Cancer Reporting System to be the ideal valid places reference for an automated edit which flags abstracts for which correction of one of the location fields may be needed. This translates to higher batch geocoding success rates with a reduction in false positive matches. The edit with associated documentation and reference data is available from Laura Stephenson at laura.stephenson@dhs.wi.gov and 608-266-8926. The records comprise the following five fields:

Zip5   The five digit zip code

TypeZip   D=residence/business delivery, P=PO only, M=military mail, U-unique delivery

PO_State   State location post office for this zip code

NameCity   A USPS-acceptable locality/city name for the zip code

CoFIPS   County (FIPS code) location of deliveries using this zip code

e) StateEtc

The StateEtc table pairs the standard USPS two-character abbreviations with full text names of States and State-like jurisdictions used for mail delivery, e.g., the District of Columbia and United States territories and possessions, such as Puerto Rico and the Virgin Islands, served by the USPS.

Abbre   The two digit State code/abbreviation

State   Full name of State/State-like entity

3. Program Management Opportunities

Zip codes are key elements of address data within patient records used for disease tracking. By themselves they are sometimes used as a basis for area analysis. As a part of a full postal delivery address, they are used intensively by address validation/standardization and geocoding software. In both contexts, incorrect zip codes effect incorrect analyses.

The official zip code reference data shared here can be productively used in several ways to improve public health data quality. For example, the tables themselves (or practical area subsets of them) can be provided to case reporters, e.g., at hospitals and clinics) as an aid for checking the validity of zip codes present in primary patient records.

At the point of abstract preparation and the central registry office, this reference data may be incorporated into automated EDITS which can validate individual zip codes and validate place element combinations. For several years, the Wisconsin Cancer Reporting System has used reference tables of valid combinations of zip codes and city names and zip codes and county FIPS codes to flag problems early in the data stream, In many cases, utilization of the USPS-based reference data guides the correction of these address elements thus improving the quality of address data fed to the geocoding process and resultant quality and yield of address matching, standardization, and determination of other place attributes (needed for GIS processing) such as census tract and approximate coordinate point location.

4. The Evolving Zip Code Map

The USPS licenses monthly-updated zip code reference data for good reason. Not only do the details of address delivery inventories change with new subdivision, road and housing construction, the delivery areas of post office facilities (denoted by D-type zip codes) expand and contract pursuant to perceived opportunities for improved management efficiencies. Similarly, new zip codes are added and old ones removed from the active roster.

Consider common types of changes in settlement patterns. Rapidly growing residential extension from urban centers often prompts the need for new D-type post offices with new D-type zip codes. Conversely, rural areas of declining population may experience the "demotion" of a D-type post office to a P-type facility while addresses hitherto assigned its zip code, are re-assigned to a more distant D-Type facility which has had the geographical range of its deliveries extended.

The USPS maintains an interactive Internet service for checking the status of individual zip codes and individual addresses. It can be accessed at http://zip4.usps.com/zip4/welcome.jsp. For comprehensive access to the official USPS reference data, the Wisconsin Cancer Reporting system will try to retain its USPS licensee status and continue to provide this data. For further information, contact Robert Borchers at robert.borchers@wi.gov or 608-266-0633.