

## **Racial/Ethnic Differences in Service Utilization Patterns and Mobility of Female Clients in the Region VIII Infertility Prevention Project, 1994-2007**

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By the end of the presentation, participants will be able to describe the service utilization pattern of women accessing chlamydia (CT) testing at IPP facilities.

**Background:** The Region VIII Infertility Prevention Project (IPP) provides chlamydia (CT) testing and treatment of women in family planning (FP), STD, Indian Health Service (IHS), and other program areas. A soundex system provides regionally-unique patient identifiers.

**Objective:** To assess service utilization patterns across clinics and program areas (FP, STD, IHS) and to determine demographic variations in utilization.

**Methods:** Analysis included female clients aged 10-19 who visited any FP clinic between 1994-2007. All records from visits to any IPP clinic were aggregated to the client-level (n=180,600), based on soundex and birthdate. Service utilization across program areas and clinics was assessed by age, race/ethnicity, year of first visit, and duration in IPP.

**Results:** Age at first visit varied by race/ethnicity: % of clients age<15 years ranged from 13% (whites) to 32% (American Indians). Racial/ethnic minorities were more likely to return to IPP clinics (range: 53% of American Indians to 34% of whites). Likelihood of visiting multiple programs increased for clients staying in IPP 2+ years, which was modified by race/ethnicity. Among returning clients (n=63,759), 82% of white clients exclusively visited FP clinics compared to 55% of black, 37% American Indian, 74% Asian, and 70% Hispanic clients. Likelihood of visiting an STD clinic was doubled for black clients compared to other racial/ethnic groups.

**Conclusion:** Racial/ethnic minorities remain IPP clients for a longer duration than white clients, but have greater mobility across programs. The ability to link client visit records across programs is necessary for accurate interpretation of service utilization and health outcomes.

**Implications for Programs/Policy/Research:** Program capacity to monitor client utilization patterns of CT testing over time can assist IPP in developing targeted programs. Further research into reasons for client mobility could improve coordination of services between program areas.

## EVALUATION OF THE SOUNDEX FUNCTION FOR THE REGION VIII INFERTILITY PREVENTION PROJECT (IPP)

- The Soundex code is an indexing system which translates names into a four digit code consisting of one letter and three numbers. The most familiar application of Soundex is its use by the US Bureau of the Census to create an index for individuals listed in the US census records after 1880 (Infobahn Outfitters, Inc, 1995).
- The typical purpose of a Soundex indexing system is to compare strings of text for the same sound to avoid problems with common misspellings. For example, Smith and Smythe have the same Soundex code.
- The Soundex coding system was developed so that a surname could be found even though it may have been recorded under various spellings (National Archives and Records Administration (NARA, 1997)).

### Soundex Rules

- All Soundex codes have 4 alphanumeric characters: 1 letter -- 3 digits
- The first letter of the name is the first character of the Soundex code.
- The three digits are defined sequentially from the name using the Soundex key that follows.

Adjacent letters in the name which belong to the same Soundex key code number are assigned a single digit;

2. If the end of the name is reached prior to filling three digits, it uses zeroes to complete the code.

3. All codes have only have four characters, even if the name is long enough to yield more.

### Soundex Example:

Beadles=B342

- The first letter of the name is the first part of the
- Soundex code, b
- Vowels are ignored, so ignore EA
- The next part of the code is from the letter D which is assigned 3
- The next part of the code is from the letter L which is assigned 4
- Vowels are ignored, so ignore E
- The next part of the code is from the letter S which is assigned 2 (Infobahn Outfitters, Inc, 1995).

The Soundex system in the Region VIII Infertility Prevention Project (IPP) is used for the purpose of converting last names into a quasi-identifier that cannot be converted back into the last name directly, thereby protecting confidentiality.

When the Soundex algorithm is used the way it was intended, only applied to last name, to be used in the Regional database:

- The overall match rate is excellent: 91.3 to 98.7% with a sensitivity and specificity rate of 100%.
- The Soundex code housed on the Regional database is accurate and consistent.

#### Assessing Soundex+DOB as a Unique Identifier

- The percentage of records having the same Soundex+DOB combination ranged from 0.16 to 0.87%.
- Of these records, only one combination was determined to be a different person, 0.02%. This result was from the method of Soundex algorithm that was not found to be as accurate and consistent as the other two methods.
- Even when the Soundex algorithm is not used the way it was intended, only applied to last name, combining Soundex code with DOB seems to create a unique identifier.

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#### Tracking of Multiple Testing Visits

- Based on the results from the evaluation of three methods used in the Region VIII IPP, the system is fully capable of tracking multiple chlamydia testing within a single clinic site and service utilization in various clinic types in the Region VIII IPP database.