# Aim 3A Report

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This report contains information from 20 lead nurse regions, 41,657 referrals, 19,711 interviews, 10,593 initial visits, and 13,838 enrollments. It summarizes C1 referrals between 2007 and 2013.

#### 1 Referrals

Referral information was gathered using the Referral Form (Form #473); if this was missing for a recruit, the Client Activity Status (Form #439) was used to fill in some information. The first histogram looks at the number of referrals received by the different *regions* during the reporting period. The second histogram looks at the number of referrals received by the different *region years* during the reporting period. Notice the median and mean are annotated each with a darker vertical gray line; the median is on the left, the mean is on the right.

When analyzing the cost-effectiveness of C1, an understaffed region should be treated differently than an adequately staffed region. Later in the report a region's funding and staffing levels are accounted for.



This scatterplot is atypical, because the horizontal axis is not a real quantitative dimension, it is the value of the Region's ID. The information is redundantly displayed by the digits in the scatterplot. The graphs below can serve as a legend for the subsequent line graphs; the color of a region is constant across graphs. The LeadNurseRegionID are decoded in the long table at the end of this document. The second scatter plot is similar, but now the vertical axis is the proportion of referrals *per infant in need.* For instance, Region 15 has the highest rate of referrals (given its population of infants in need).



The following longitudinal graph show the number of referrals received by region and time. Each region has a unique line. Each boxplot denotes a year's 25%, 50% and 75% counts of referrals to a region. For instance, when the middle of a box plot is at y = 250, then 50% of the regions received 250 referrals or fewer in that year. The gray lines appear again as the median (on bottom) and mean (on top).





### 2 Interviews

The interviews (as described in the C1 Referral Form, #473) may also be of interest. The graphs in this section follow the same pattern as in the Referral section above.



## 3 Enrollments

The enrollments (as described in the C1 Client Activity Status Form, #439) may also be of interest. The graphs in this section follow the same pattern as in the Referral section above.



# 4 Initial Visits

The initial visits (as described in the C1 Referral Form, #473) may also be of interest. The graphs in this section follow the same pattern as in the Referral section above.



## 5 Time and Effort

The values come from the activity hours in the OSDH T&E database, divided by 24. All activities are summed, including leave. Tulsa and Oklahoma counties are not included.



## 6 Activity by the Number of Infants in Need

The set of measures were scaled by a region's estimated number of infants in need, which come from WIC's 2010 assessment. In the current report draft, the 2010 infants-in-need estimates were multiplied by 7 to approximate the total need during the 7 year reporting period.









Interviews per Number of Infants in Need



Enrollments per Number of Infants in Need





Interview

Enroll

Initial Visit

6

**2**0

18

**Referral Total** 

0%

#### Activity by Recruits $\mathbf{7}$

The set of measures were scaled by a region's number of referrals.









Enrollments per Recruit 75% 18 Enrollments per Recruit %52 % 20 <mark>1</mark>2 9 g( 0% 2013 2007 2008 2009 2010 2011 2012



EnrollPerSuitablerCannotContact



### 8 Tables

This table connects a county's name to its ID, used in the previous scatter plots. The vaules reflect the whole reporting period (which is 7 years long). Counties receiving C1 funding are indicated in the third column.

ID	Counties	Referrals	Interviews	Enrolls	InitialVisits
1	Blaine, Creek, Dewey <sup>*</sup> , Kingfisher, Lincoln, Logan	$3,\!051$	1,447	1,076	867
2	Beaver*, Cimarron*, Ellis*, Harper*, Texas, Woods*, Woodward	914	364	198	170
3	Kay, Noble <sup>*</sup> , Pawnee, Payne	2,018	1,191	504	382
4	Atoka, Coal, Pittsburg, Pontotoc	$1,\!677$	774	512	386
5	Nowata <sup>*</sup> , Osage <sup>*</sup> , Rogers, Washington	1,582	722	473	327
6	Bryan, Choctaw, McCurtain, Pushmataha*	2,342	1,006	900	807
7	Cleveland, McClain*	$2,\!696$	1,376	811	750
8	Latimer <sup>*</sup> , Le Flore	$1,\!187$	504	354	346
9	Garvin, Grady, Murray, Stephens	2,305	414	452	96
10	Canadian, Custer, Washita <sup>*</sup>	$1,\!454$	480	374	261
11	Adair, Muskogee, Sequoyah, Wagoner	1,319	340	553	154
12	Carter, Jefferson <sup>*</sup> , Johnston, Love <sup>*</sup> , Marshall	1,471	746	519	391
13	Haskell <sup>*</sup> , McIntosh, Okmulgee	$1,\!195$	559	251	190
14	Beckham, Greer <sup>*</sup> , Harmon <sup>*</sup> , Jackson, Roger Mills <sup>*</sup> , Tillman <sup>*</sup>	1,555	778	353	288
15	Alfalfa*, Garfield, Grant*, Major*	1,981	744	482	434
16	Hughes, Okfuskee <sup>*</sup> , Pottawatomie, Seminole	2,211	$1,\!684$	558	506
17	Caddo, Comanche, Cotton <sup>*</sup> , Kiowa <sup>*</sup>	1,998	1,055	402	277
18	Cherokee, Craig, Delaware, Mayes, Ottawa	$1,\!127$	651	739	601
19	Oklahoma	4,509	2,441	1,819	$1,\!628$
20	Tulsa	5,065	$2,\!435$	2,508	1,732

Here are ranks of region performances, on the subscales shown in the table below. The regions are ranked on each subscale. The rank of the sum (of the subscale ranks) is shown in the third column below.

The three subscales related to referral performance are (a) 'RankReferralTotalPerNeed', (b) 'RankReferralSuitableOrCannotContactPerNeed', and (c) 'RankReferralSuitablePerNeed. The four subscales related to enrollment are (a) 'RankEnrollPerNeed', (b) 'RankEnrollPerSuitableCannotContact', (c) 'RankEnrollPerSuitable', and (d) 'RankEnrollPerNurseDays'.

ID	Counties	Rank	Referral Ranks	Enroll Ranks
6	Bryan, Choctaw, McCurtain, Pushmataha*	1.00	3-2-2	1-6-6-1
15	Alfalfa*, Garfield, Grant*, Major*	2.00	1-1-7	3-11- 7- 4
1	Blaine, Creek, Dewey <sup>*</sup> , Kingfisher, Lincoln, Logan	3.00	2-6-5	2-4-5-14
4	Atoka, Coal, Pittsburg, Pontotoc	4.00	9-10-10	7-8-9-2
7	Cleveland, McClain*	5.50	7-3-1	5 - 14 - 14 - 13
12	Carter, Jefferson <sup>*</sup> , Johnston, Love <sup>*</sup> , Marshall	5.50	11-9-9	4-7-8-9
8	Latimer <sup>*</sup> , Le Flore	7.00	8-5-4	6-13-13-18
14	Beckham, Greer <sup>*</sup> , Harmon <sup>*</sup> , Jackson, Roger Mills <sup>*</sup> , Tillman <sup>*</sup>	8.00	5-7-6	10 - 15 - 15 - 10
16	Hughes, Okfuskee <sup>*</sup> , Pottawatomie, Seminole	9.00	6-4-3	9-18-18-12
9	Garvin, Grady, Murray, Stephens	10.00	4-14-13	14-10-12-7
18	Cherokee, Craig, Delaware, Mayes, Ottawa	11.00	19-19-18	11- 1- 1-11
3	Kay, Noble <sup>*</sup> , Pawnee, Payne	12.00	12-8-8	13-17-17-6
11	Adair, Muskogee, Sequoyah, Wagoner	13.00	18-20-20	18-2-2-8
5	Nowata <sup>*</sup> , Osage <sup>*</sup> , Rogers, Washington	14.00	15 - 13 - 14	12 - 12 - 11 - 15
10	Canadian, Custer, Washita $^*$	15.00	13 - 15 - 15	15- 9-10-16
2	Beaver*, Cimarron*, Ellis*, Harper*, Texas, Woods*, Woodward	16.00	14 - 12 - 12	17-20-20-5
13	Haskell <sup>*</sup> , McIntosh, Okmulgee	17.00	10-11-11	16 - 19 - 19 - 17
17	Caddo, Comanche, Cotton <sup>*</sup> , Kiowa <sup>*</sup>	18.00	16-17-16	20-16-16-3
19	Oklahoma		20-18-19	19- 5- 4-NA
20	Tulsa		17-16-17	8-3-3-NA

#### 9 Methods

#### 10 Session Information

- R version 3.1.1 RC (2014-07-04 r66071), x86\_64-w64-mingw32
- Base packages: base, datasets, graphics, grDevices, grid, methods, stats, utils
- Other packages: colorspace 1.2-4, ggplot2 1.0.0, knitr 1.6, lme4 1.1-7, lubridate 1.3.3, Matrix 1.1-4, plyr 1.8.1, Rcpp 0.11.2, reshape2 1.4, scales 0.2.4, xtable 1.7-3
- Loaded via a namespace (and not attached): digest 0.6.4, evaluate 0.5.5, formatR 0.10, gtable 0.1.2, labeling 0.2, lattice 0.20-29, MASS 7.3-33, memoise 0.2.1, minqa 1.2.3, munsell 0.4.2, nlme 3.1-117, nloptr 1.0.0, proto 0.3-10, splines 3.1.1, stringr 0.6.2, tools 3.1.1

#### 11 Additional Information

We would like to address any questions or suggestions during any stage of the evaluation. Please contact David Bard (David-Bard@ouhsc.edu), Will Beasley (William-Beasley@ouhsc.edu), or Thomas Wilson (Thomas-Wilson@ouhsc.edu).