



All Data are Fictional and Charts Deleted to Protect Confidentiality

DATE: 08/11/00
TO:
FROM: Stan Colquitt
President MMA
RE: Infertility Potential/Selected Counties

Method

Population data for the selected counties was obtained from the United States Census Bureau. The total population counts were derived from the 1996 county projections. All data for the number of females in the fertility age groups, income, education, occupation, and retail sales index were extracted from the 1990 census.

The 1990 number of females by age group data was adjusted, based on growth rates, for all counties considered. Most measured parameters will change in relation to total growth, given the lack of a significant migratory effect. For example, the population of Muskogee County increased by 8.9% for the period 1990-1996. It is probable that the number of females in the infertility age group increased similarly as the population aged. Any variations caused by this estimation technique will be minor.

Numerous well-controlled studies have demonstrated that the incidence of infertility in females of reproductive age in the general population is approximately 9% (1,2,3). This 9% represents total patients in the treatment pool, but does not delineate the likelihood that patients will seek therapy.

Application of the 9% rate to a population that has a high poverty rate will lead to an over estimation of potential because patients cannot afford therapy. Conversely, a population that has a high percentage of families participating in a major health plan providing infertility benefits will produce greater potential.

A study conducted by Mosher and Pratt (1) provides a good model for calculation of potential by treatment type. They conducted an exhaustive study, in conjunction with the Center for Disease Control, which defines patients likely to seek therapy and the type of therapy they will receive.

Of all women (9% of females of reproductive age), suffering from infertility only 43% will actually seek any type of therapy. Of this 43%: 25percentage will receive advice only, 20% will receive OI with or without IUI, and 2% will progress to IVF.

Other factors can also be used to assess potential when comparing different areas. It was shown (1) that economics, education levels, and occupation are correlated strongly with the likelihood of seeking therapy. For example, if one area has a higher median income, higher education levels, or more people in professional/technical occupations the infertility potential will be greater.

The subset of females chosen for this analysis is those that are between the ages of 25-44 and reside in families with incomes greater than \$25,000/yr. It is a well-known fact that the incidence of infertility increases with age and inclusion of females under 25 will inflate the estimate of potential. Females above reproductive age must be removed for the same reason.

Infertility is a boutique market and the majority of patients seeking ART are self-pay. Areas that have high unemployment, high poverty rates, and host no major industry providing infertility coverage offer poor potential.

Table 1- Reproductive Females*

Counties	1990 Census	Population Adjustment	Total Females
	25707	0.045	26863.82
	3783	0.123	4248.309
	3230	0.098	3546.54
	116246	0.08	125545.7
	6046	0.057	6390.622
	1388	0.21	1679.48
	14153	0.34	18965.02
	31885	0.136	36221.36
	8155	0.25	10193.75
	2941	0.12	3293.92
	8658	0.3	11255.4
			248203.9

6456	0.25	8070
12780	10.3	144414
21485	0.167	25073
95926	0.069	102544.9
44478	0.052	46790.86
		326892.7
6278	0.123	7050.194
3843	0.098	4219.614
960	0.086	1042.56
		12312.37
TOTAL Females		587409

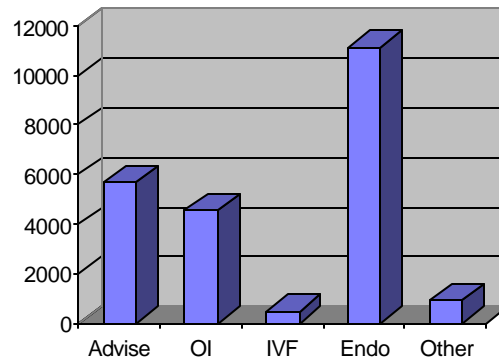
*Reproductive Females: Caucasian Females between 25-44 yr.: family income > \$25,000

Maryland contains the highest number of potential patients (326,892.7), followed by North Carolina (248,203), and West North Carolina (12,312).

These data demonstrates the greatest potential for new patients, based on age groups, exist in Maryland and North Carolina. It is likely that promotional efforts directed to the West North Carolina market will not yield a significant number of infertility patients.

Table 2 illustrates the number of patients that will present for each type of treatment. Only 9% of females will experience infertility and only 43% of those that do will seek therapy. This 43% is based on a broad mix of different population types throughout the United States. Areas that have higher education levels, more individuals in the professional, technical, executive, employment categories, or an employer offering infertility treatment benefits, will exceed this level. Advertising that increases awareness of infertility treatment options will also raise the percentage of patients likely to seek therapy.

Chart 2- Potential Cases



The IVF potential for the market is 454 cases. The actual number of cases in North Carolina and Maryland is probably somewhat higher due to above average education levels. The presence of other established ART programs in the market must be considered. A new clinic will usually not affect patient referral patterns for at least two years, unless the referral physicians are dissatisfied with current specialists.

The OI category represents all patients (4546) that will receive an ovulation induction drug. Approximately 30% will become pregnant taking oral Clomid leaving 3,183 that may require injectable gonadotropin products. The obstetrician/gynecologist or family practitioner will initiate the first level of therapy (Clomid). A few obstetricians will administer gonadotropins making them competitors to the reproductive endocrinologist.

Virtually all patients presenting for endometriosis will be seen, and treated, by the obstetrician/gynecologist. They may self refer to the reproductive specialist on rare occasions. Surgeries such as endometrial ablations are routinely performed by obstetrician/gynecologists and are revenue producers.

The majority of the 43% who seek therapy will first present to the obstetrician/gynecologist. He/she conducts the first work up and usually begins empiric therapy. This physician makes the decision of when, and where, to refer for advanced care. Many educated patients will self refer to a specialist early in treatment. Advertising, and other promotional efforts, directed to this group will often yield excellent results.

Table 3- Education Level

	<u>High Sch</u>	<u>College</u>
	75.20%	24.50%
	87.50%	52.30%
	75.00%	18.60%
	66.70%	14.90%
	91.40%	49.00%
	78.90%	21.50%
	73.10%	20.40%
	86.60%	32.70%
	87.80%	27.60%
	76.60%	19.00%
	64.60%	11.80%
	80.90%	21.60%
	78.40%	26.50%
	79.30%	17.60%
	81.00%	16.20%
	80.40%	22.00%

	90.60%	49.90%
	83.20%	25.50%
	66.00%	12.30%
	68.40%	11.90%
	68.20%	16.20%
	68.40%	11.80%

The percentage of people with some college education in North Carolina is 24.5%, Maryland (26.5%) and West North Carolina (12.3%). The counties with the highest number of college educated individuals (highlighted in gray) are Mecklenburg (52.3%), Pinellas (49.9%), Muscogee (49%), and Loudon (32.7%). These counties are also populous indicating large numbers of highly educated couples of reproductive age.

The education levels in West North Carolina are well below average lending support to the supposition that promotion in the West North Carolina market will not yield a substantial number of new patients.

Wilcox and Mosher (1) demonstrated the couples employed in professional/ technical, supervisory, or executive positions were most likely to pursue advanced care for infertility. Occupational data is most useful for excluding areas that may have a high percentage of workers in jobs that require little training or education.

Table 4- Occupation

Pro/Tech/Ex Total Employed

	52837	180734	29.23%
	1261	6851	18.41%
	2805	13524	20.74%
	221075	468776	47.16%
	6984	25531	27.35%
	1957	6603	29.64%
	18833	50525	37.27%
	36780	112964	32.56%
	7451	29479	25.28%
	2561	12856	19.92%
	8514	30440	27.97%
	6983	26820	26.04%
	14590	52605	27.74%
	22642	80833	28.01%
	203790	431572	47.22%
	126221	412742	30.58%
	5204	27449	18.96%
	3873	17631	21.97%
	882	5142	17.15%

Table 4 denotes the number of individuals in technical/professional/ executive occupations as a percentage of total employed individuals. Almost one half of all individuals employed in Muskogee (47.16%), and Pinellas (47.22%) counties are in high potential groups. These percentages are well above state and national averages and denote a highly educated, motivated population. Percentages between 20-29% indicate a positive or neutral effect on seeking therapy. Conversely, areas such as West North Carolina offer little no potential.

Given that ART is usually patient pay, areas with high disposable income offer good potential. One measure on this potential is the per capita retail trade index (RTI). The RTI is defined as the amount of dollars per capita spent in retail trade over a one-year period. The RTIs for the counties analyzed are shown in Table 5.

Table 5- Comparative RTI

County	Per Capita Trade \$
	7666
	9240
	2483
	6099
	8605
	5637
	3076
	9050
	7535
	6512
	5888
	5512
	5282
	4184
	3560
	9473
	8006
	6386
	6920

Counties with high RTIs are: Mecklenburg , Muscogee, Loudon, Pinellas, and Gaston. Individuals in these counties have higher than average disposable incomes and offer greater infertility potential. RTI data suggests that West North Carolina will not produce positive results.

Conclusions

- Selected counties in the market offer high potential for ART. These counties include: Muskogee, Mecklenburg, Pinellas, Harris, and Gaston. These counties also comprise the bulk of the population in the market area.
- The education and occupation data are particularly favorable in Muscogee, Harris, and Pinellas counties. These areas should be the primary focus of all promotional/expansion efforts. West North Carolina offers poor potential by all parameters and should receive no promotional emphasis.
- The market should yield between 400-650 IVF (1200 to 1950 cycles) cases per year. It is important to learn how many ART programs are currently impacting the area and the number of cycles each is conducting. MMA can make this determination through an IVF laboratory survey.
- The area may be fully developed, albeit through distant IVF centers. A new clinic will have to impact the market area with carefully crafted promotional messages and strategies in order to change established referral patterns.

The Smith name recognition should be a strong advantage. This fact coupled with aggressive promotion and competitive pricing should attract a viable number of patients the market studied.

References

1. Wilcox, Lynne S., MD, Mosher, William, Ph.D., "Use of Infertility Services in the United States," *Obstetrics and Gynecology*, Vol. 82, NO. 1, July 1993.
2. Mosher, W.D., Ph.D., Pratt, W.B., MD, "Fecundity and Infertility in the United States," DHHS Pub No (PH5). 91-1250, Hyattsville MD, National Center for Health Statistics, Advance data NO 192,1990.
3. Fertility of American Women, United States Census Bureau, 1992