Staff Paper

Project Report: A Market Opportunity Study for the Development of a New Oncology Service in the Veterinary Teaching Hospital

Eric R. Larsen and James W. Lloyd

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Department of Agricultural Economics
MICHIGAN STATE UNIVERSITY
East Lansing, Michigan 48824

PROJECT REPORT:

A Market Opportunity Study for the Development of a New Oncology Service in the Veterinary Teaching Hospital

Submitted by:

Eric R. Larsen, MBA
James W. Lloyd, DVM, PhD
Lloydj@cvm.msu.edu

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College of Veterinary Medicine
Michigan State University

Executive Summary

Current trends in veterinary medicine indicate the potential need for several new services within the VTH. Based on focus groups and practitioner surveys conducted in late 1998 and early 1999, potential new services could include oncology, overnight emergency, behavior medicine, dentistry, equine sports medicine and exotic animal medicine. Of these, an oncology service is currently being considered based on internal staff recommendations coupled with survey and focus group information supporting demand for the service. Different from past new services, the oncology service was also earmarked to undergo a formal market study to determine the full potential of the opportunity and to more clearly establish the goals and objectives within the service.

With that in mind, the objective of this study was to evaluate the market opportunity for expanding the Veterinary Teaching Hospital services to include an oncology service.

The approach employed for the Oncology Market Study involved a forecasting process to assess the market opportunity by using a variety of tools and data sources. This process built on a summary of existing data as well as revised assumptions over time to include new data and experience collected along the way.

Three key components of the study were identified: geographic market determination, demand factors and supply factors. Market determination set the stage for focused marketing efforts and outlines expectations for future growth as well as establishes the physical parameters for measuring demand and supply. Demand factors provided the basis for caseload estimates and revenue projections. Supply factors were used to modify the opportunity by incorporating pricing strategies and competitive effects.

Based on historical referral data, we determined Michigan State University's primary market area to be within a 150-mile radius of East Lansing, Michigan. Specific geographic markets were then defined based on primary population densities and metro area groupings within that radius. Nine

key market areas were identified through this process: 1) Detroit Metro/Southeastern Michigan, 2) Tri-City/Thumb, 3) Mid-Michigan, 4) Southwestern Michigan, 5) Western Michigan, 6) Upper Lower Peninsula, 7) Tip of the Lower Peninsula, 8) Indiana and 9) Ohio. Of these, the Detroit Metro Area, Indiana and Ohio represent the largest initial opportunity for a new oncology service located at MSU.

Caseload estimates were derived from projections of market area household population and pet ownership statistics. Three separate methods were used to develop a confident range of expectations for MSU's caseload: 1) cancer incidence and treatment rates, 2) minimum market coverage expectations and 3) direct relationship comparison to a successful oncology service, Colorado State University. Although the study caseload estimates varied depending upon method used, the projections were consistent in their range. In fact, the three private oncology services in Southeastern Michigan have experienced as much as four to six week back logs in new case admittance due to the overwhelming demand for oncology services in Michigan. Based on projections from these methods, we were able to develop a conservative estimate of potential annual new malignancies for MSU of between 1,500 and 2,000 cases.

To develop revenue projections, we conducted surveys of seven other veterinary teaching hospital oncology services. From them, we obtained pricing strategies and revenue figures for major oncology procedures. Additionally, we polled private-practice services within the MSU market area for their general pricing strategies and overall treatment revenue. With this information, we were able to create a conservative estimate of the average case revenue potential for the MSU oncology service of $1,200 per case by choosing a reasonable mid-range from the reported strategies.

Therefore, based on the estimates and projections made here, Michigan State University can expect an annual total gross revenue for a fully-developed and successful new oncology service of between $1.8M and $2.4M. Initial marketing efforts should be focused on securing a client base from the Southeast Michigan, Ohio and Indiana market areas.

Introduction:

As demand for services continues to grow within the veterinary medical field, the Veterinary Teaching Hospital (VTH) must expand its services to meet those demands. Past methods for determination of which services to expand have been somewhat arbitrary. Oftentimes, new service development has been driven not from demand within the medical community or the animal-owning public, but rather by the immediate availability of resources or faculty interests. These methods can often be contrary to efficient resource management and may result in suboptimization of opportunities.

Current trends in veterinary medicine indicate the potential need for several new services within the VTH. Based on focus groups and practitioner surveys conducted in late 1998 and early 1999, potential new services could include oncology, overnight emergency, behavior medicine, dentistry, equine sports medicine and exotic animal medicine.

Of these, an oncology service is currently being considered based on internal staff recommendations coupled with survey and focus group information supporting demand for the service. Different from past new services, the oncology service is also undergoing a formal market opportunity study to determine the full potential of the opportunity and to more clearly establish the goals and objectives within the service. To fully understand the parameters of the opportunity, a study must investigate the source of revenue and quantify it from both a geographic and absolute caseload basis. Assumptions must also be made on competitive impact and referral base acceptance. With that in mind, the objective of this study is to evaluate the market opportunity for expanding the Veterinary Teaching Hospital services to include an oncology service.

The potential opportunity is clearly identified both in revenue and caseload. It is also a tool in the next steps involving marketing plans and staffing procurement as the project moves forward.

Materials and Methods:

The approach recommended for the Oncology Market Study involves developing a forecasting process to assess the market opportunity by using a variety of tools and data sources, including conceptualization schemes, models, and other specialized analytical techniques. This process builds on a summary of existing data sources as well as revised assumptions over time to include new data and experience collected during the process. The emphasis on continual learning about the nature of the market opportunity leads to refined forecasts. The general process with which we proposed identifying the market opportunity for a new oncology service in the VTH is taken from Thomas[1] and is outlined below.

Table 1 **Market Opportunity Forecasting Process**

1. **Diagnose and Conceptualize Key Market Factors:** Through a study of market opportunity for the new service, identify and conceptually define the major factors (key variables and stakeholders) in the new service situation hypothesized to influence demand.
2. **Formulate Spreadsheet and Submodels of Major Factors:** Using the identified factors to estimate market size, growth and penetration, formulate spreadsheet and other submodels to guide data collection.
3. **Collect Data on Key Variables:** Collect data for the various models to develop estimates of the trends or expected directions on the major factors and their interactions over the new service planning horizon.
4. **Analyze Data and Segment Market:** Analyze the data collected, with emphasis on the segmentation structure of the market and possible alternative concepts for segments.
5. **Develop Enhanced New Service Scenarios:** Focusing on a selected segment, create a new service scenario of base case and alternative futures from the trends and assumptions about the effects of major factors on the new service.
6. **Estimate Market Potential and Penetration:** In the context of the new service scenario, use the spreadsheet model to develop estimates of market potential and penetration.
7. **Continually Update Models and Estimates:** Incorporate new data and experience into the new service models and scenarios over the cycle of service development and continually update market opportunity forecasts.

Multiple sources of information were utilized to identify three key components of the oncology market opportunity study. The three key components include: demand factors, supply factors and geographic market determination. Any product or service can be developed, measured and tracked based on these factors. Market determination sets the stage for focused marketing efforts and outlines expectations for future growth as well as establishing the physical parameters for measuring demand and supply. Demand will provide the basis for caseload estimates and revenue projections. Supply will modify the opportunity by incorporating pricing and competitive effects.

Geographic Market Determination

Based on historical referral data, we determined Michigan State University's primary market area to be within an 150 mile radius of East Lansing, MI. (see Figure 1) Once the primary market area was established, we set about identifying smaller geographic markets defined by population densities and metro area groupings. These market areas were then broken down further into zip code market groups in order to allow more detailed analysis of both population and revenue data.[2] (Figure 2) Once we had identified all of the salient markets down to the zip code level, we could then recombine markets into key marketing areas based upon definitive population centers. This would allow us to measure and forecast all projections for the oncology service. (Figure 3) The final purpose of determining key market areas is to be able to develop focused marketing efforts against different markets based upon their specific needs and opportunities.

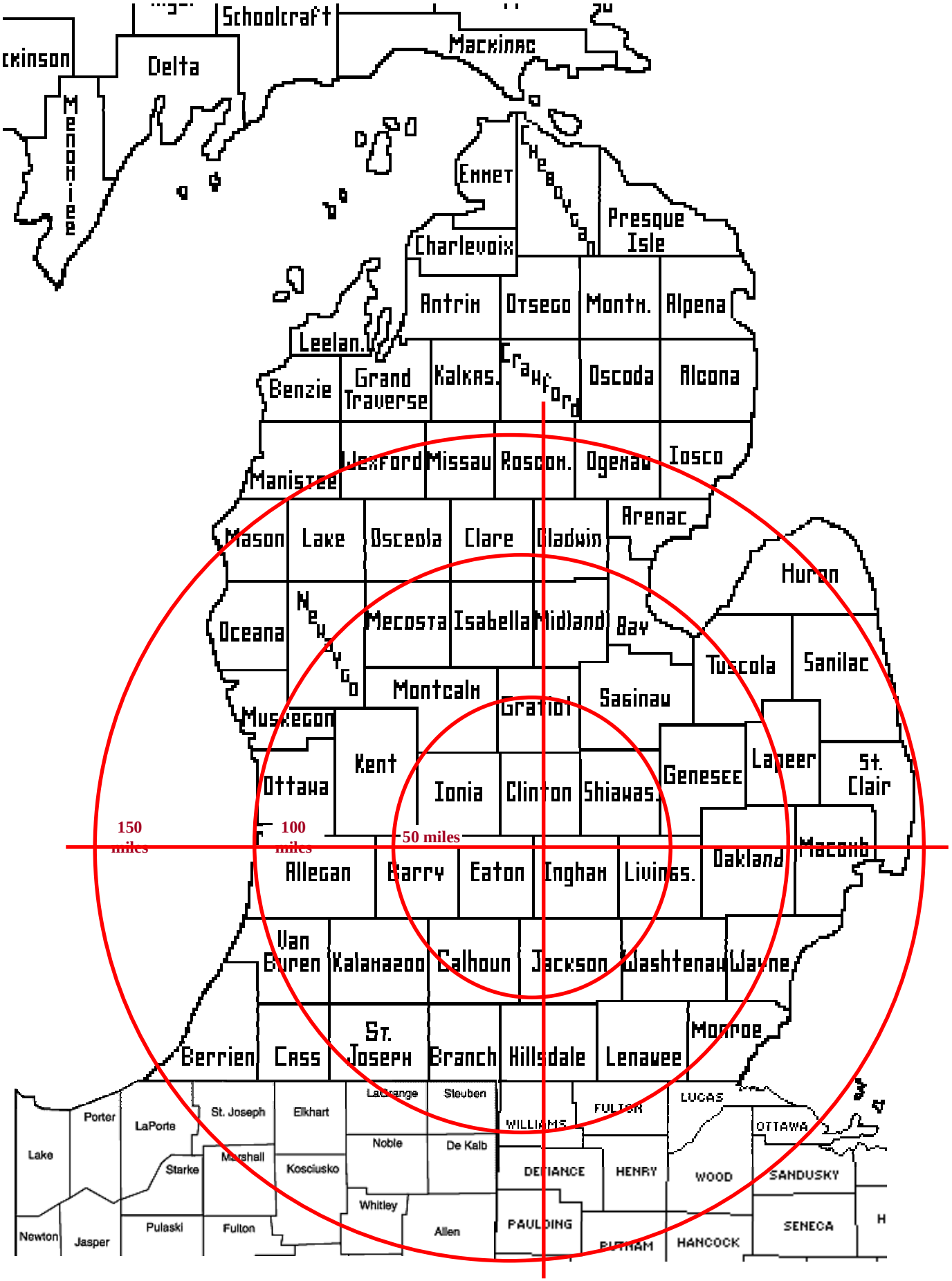


Figure 1 **MSU VTH: PRIMARY MARKET AREA**

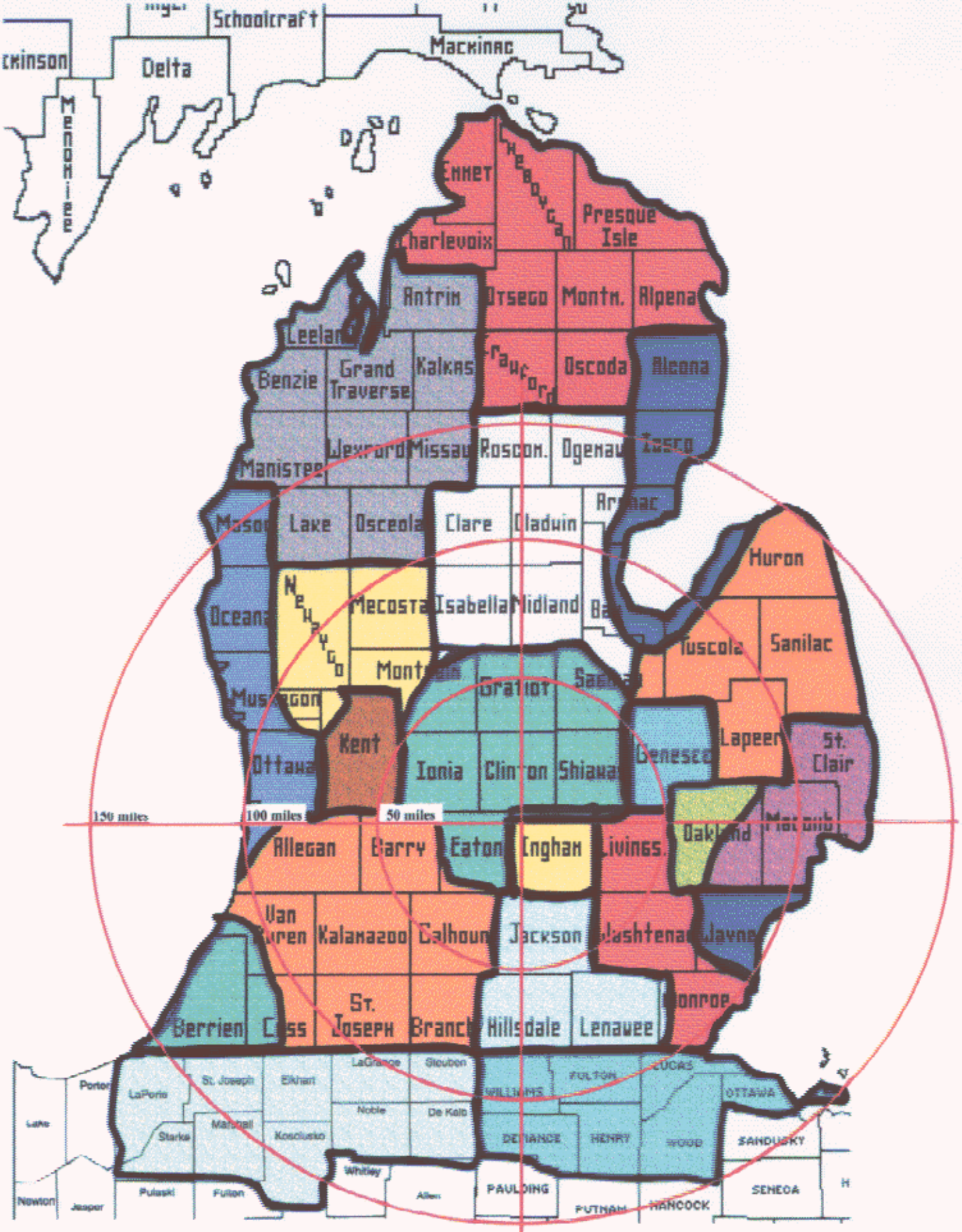


Figure 2 MSU VTH MARKET AREA: ZIP CODE MAP

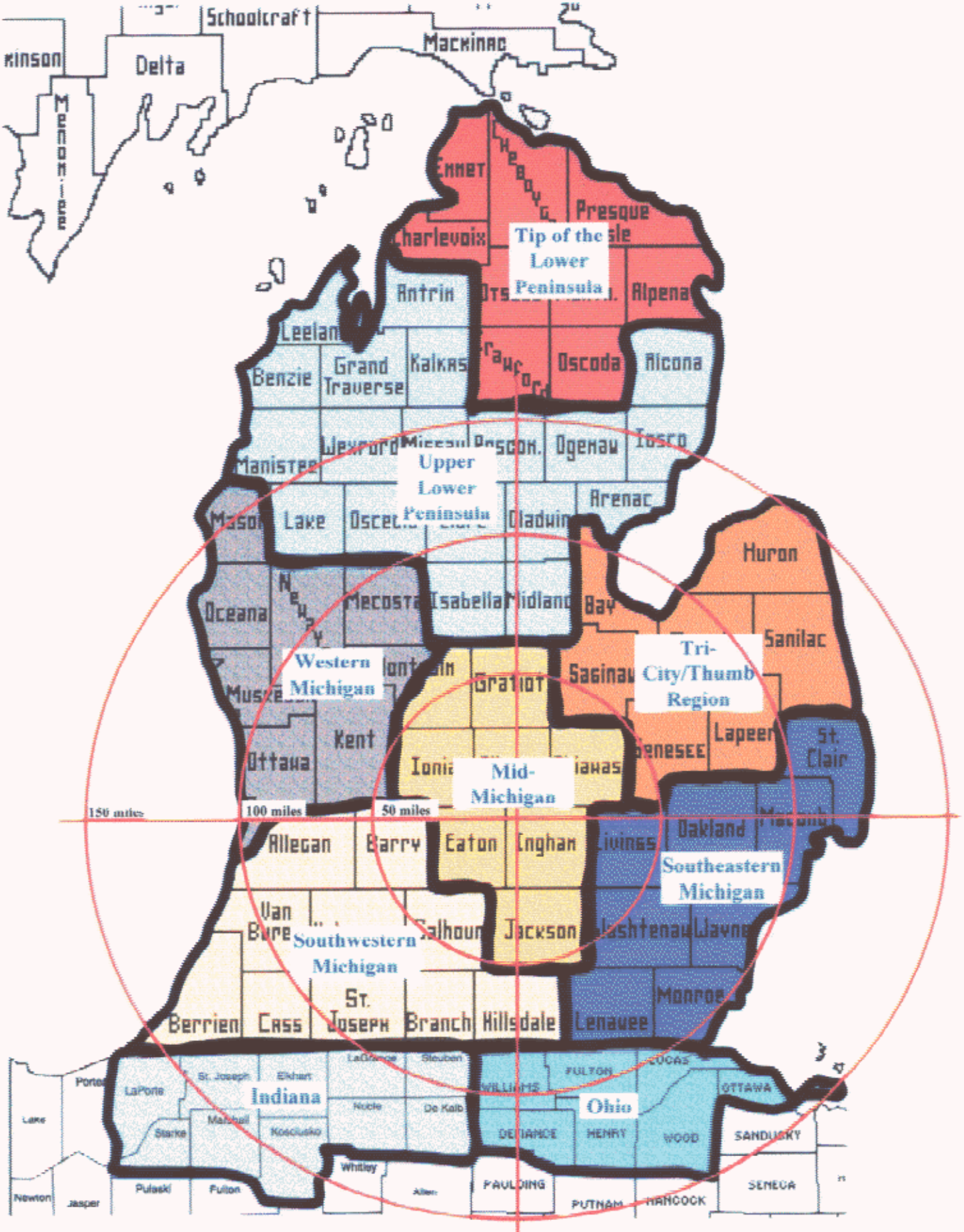


Figure 3 MSU VTH: KEY MARKETING REGIONS

Determining Demand Factors

Demand estimates for oncology services in this study were based primarily on the populations of potential patients (dogs, cats and horses) and the cancer incidence rates associated with those populations. Initial pet population estimates were developed through identification of a total number of households within the general marketing area encompassed by a 150-mile radius of Michigan State University. Household data were obtained from U.S. Census projections for year 2000[3]. Once total households were determined, estimates of canine, feline and equine pet population were calculated using AVMA data estimates for the number of pets per household.[4] (see table 2)

Table 2 **Number of pets per household calculations**

Species	% Households with Pets			Avg. # of Pets/household
	MI	**OH**	**IN**	**All Regions Combined**
Dogs	30.2	30.4	33.6	1.69
Cats	24.6	26.8	26.0	2.19
Horses	1.3	1.3	1.3	2.67

Source: AVMA 1997 U.S. Pet Ownership & Demographics Sourcebook, pp. 10,16,27

In addition to determining the total number of pets in our market area, we needed to apply a cancer incidence rate to the numbers to determine the potential cancer pet population. Cancer incidence rates are not widely published due to the difficulty of truly quantifying the actual pet population in the United States. There are, however, several different projections and assumptions being used by researchers at this time. The most recent, and seemingly well founded, projections come from Dorn and Priester[5]. Their estimates are based on an exhaustive search of previous publications and research in conjunction with data analyzed from the National Cancer Institute's Veterinary Medical Data Base (VMDB), the California Animal Neoplasm Registry (CANR) and the Tulsa Registry of Canine and Feline Neoplasms. Based on their research, they have determined cancer incidence rates for most of the major veterinary species. For our purposes, we will use their data for dogs, cats and horses. (see Table 3)

Table 3 **Estimated Rate of Malignancy/100,000/year**

Species	Rate of Malignancy
Dogs	823.3
Cats	257.4
Horses	256.3

Source: Dorn and Priester, Veterinary Cancer Medicine, Theilen & Madewell (eds.), 1987, p37

Another key factor in determining demand is interest levels for the service among the key users, in this case, referring veterinarians. To determine the overall interest of referring veterinarians in the idea of an oncology service at MSU, we conducted telephone interviews with many of MSU's top referral hospitals (based on revenue contribution). Due to the difficulty in procuring lengthy interview appointments, questions were limited to 3-4 key areas of interest. These included:

1.) Do you see a VTH Oncology Service as a positive move by MSU?
2.) Can you see your practice referring to MSU Oncology?
3.) Where do you refer oncology cases to now?
4.) Do you have any "wish list" suggestions for the new service?

In all, practitioner reaction to the potential oncology service at MSU was highly positive. Some concerns were voiced as to the affordability of the services but most saw the service as a very necessary addition to the VTH. Verbatim comments are summarized, by practice location, in Appendix A.

Determining Supply Factors and Revenue

Supply deals with where and how current oncology patients are getting care in the Michigan area. There are currently only three board-certified oncologists registered for practice in Michigan. All three of them practice in southeastern Michigan at different hospitals and are exclusively small animal. As is the case now, the majority of Michigan animals in need of oncology treatments must travel to the Detroit area for care. Some cases are also being referred to the oncology departments at University of Illinois and Purdue depending upon where they reside in the state.

To determine where, historically, cancer cases originated within the MSU market area, we looked to the Veterinary Medical DataBase[6] (VMDB) currently housed at Purdue University. The VMDB was originally set up in 1964 as a depository for diagnostic information from all of the Veterinary Colleges in the U.S.. There are now only 6 CVMs actively supplying data to the VMDB. Michigan State has always been compliant and, thus, has a 36 year data stream from which to glean information. Due to the rapidly changing nature of cancer care and for the purposes of this study, we have limited our analysis to an average of the last two years of complete data as of the date of this report, in this case, calendar years 1998 and 1999. This information, in tandem with the projected cancer incidence rates, will allow us to determine a cancer opportunity index by region. This is calculated by dividing a region's past cancer caseload by its cancer incidence. An index under 100 indicates a region which may provide an increased caseload once a service at MSU in operational. Conversely, an index over 100 indicates a region which is actually over supplying cancer cases based on expected incidence.

Also under consideration in our supply model is pricing strategies. We contacted the other CVMs that have active oncology departments and surveyed for their pricing strategies. (See Appendix B) Response was limited but the information gathered was helpful in developing estimated revenue calculations for major oncology services. In addition to the other CVMs, we also contacted two of the three local oncology service providers to get a generalized idea of their pricing strategies as well. This information, in conjunction with direct comparisons with Colorado State's current caseload-to-population and revenue-to-caseload ratios, has given us a strong projection of future revenue streams for the MSU Oncology Service.

Results:

Population Estimates

Working within the 150-mile radius established earlier, we were able to estimate the total canine, feline and equine populations to be as outlined in Table 4.

Table 4 **Estimated Pet Populations**

Region	Dogs	Cats	Horses
MI	1,700,411	1,794,897	115,642
IN (MI border)	170,326	170,794	10,411
OH (MI border)	151,571	173,155	10,240
Total	2,022,308	2,138,846	136,293

Source: AVMA 1997 U.S. Pet Ownership & Demographics Sourcebook, pp. 10,16,27,135
Source: Michigan Equine Monitoring System: Michigan Equine Survey, 1996

We used U.S. Census[7] data projected for year 2000 in the three states multiplied by the percent of pet owning households and then applied a factor to estimate the average number of pets per household. Blending this information with the earlier key market area breakouts, we were able to identify the general distribution of pets in the total Michigan State market area. (see Figure 4)

With the key market area divisions established, we were able to overlay MSU's actual cancer caseloads, by species, for 1998 and 1999. Figures 5 through 8 represent canine, feline, equine and total domestic animal cancer cases, respectively, by key MSU market area as percentages of total for an average of the two years.

Caseload Determination

Once we had established a total pet population, we applied our incidence rates to determine the total pet cancer incidence. This gave us our "total pool" of potential patients. From this pool we factored in the effects of competitive service siphoning, failure by owners to pursue treatment and

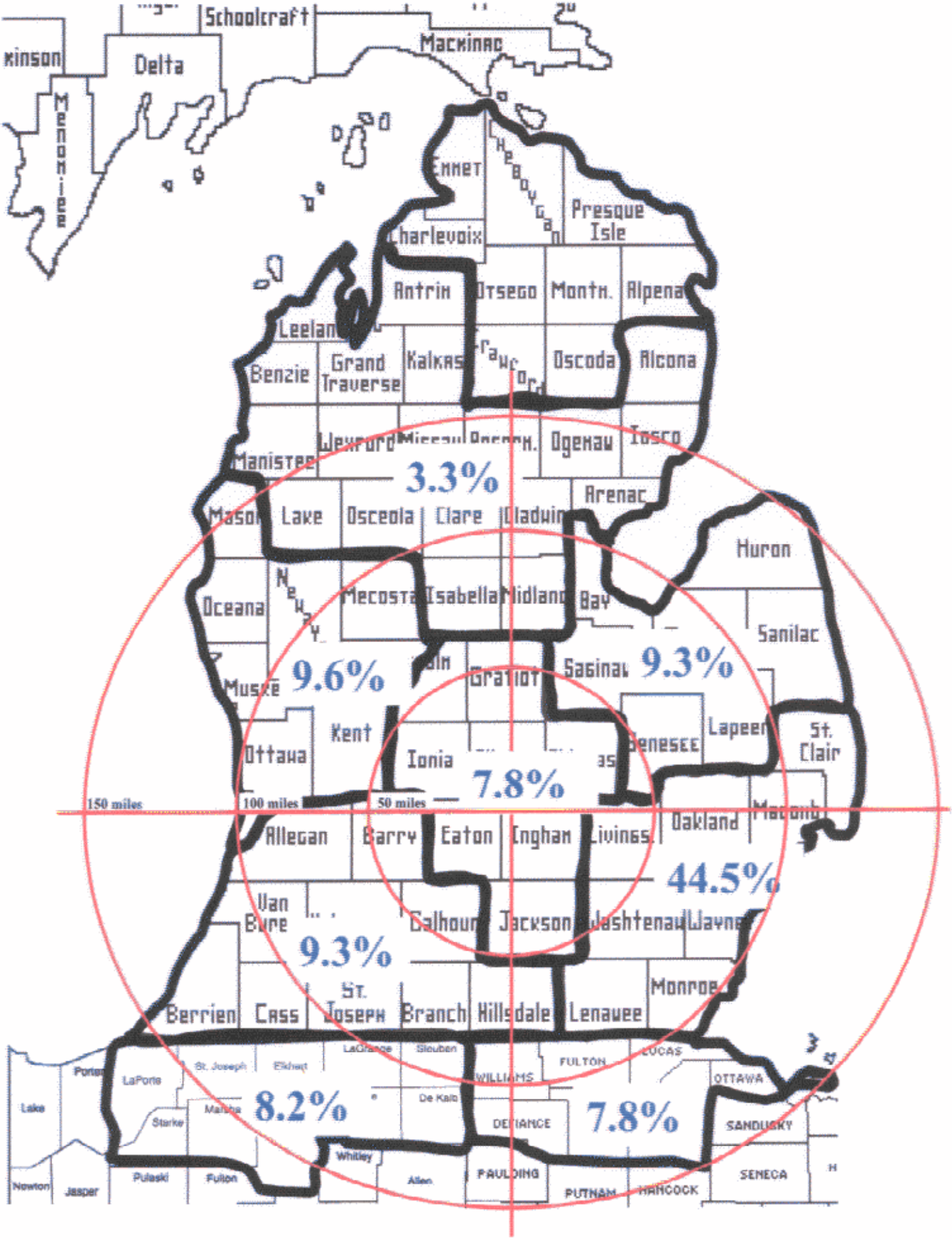


Figure 4 MSU VTH MARKET AREA: DISTRIBUTION OF COMPANION ANIMALS

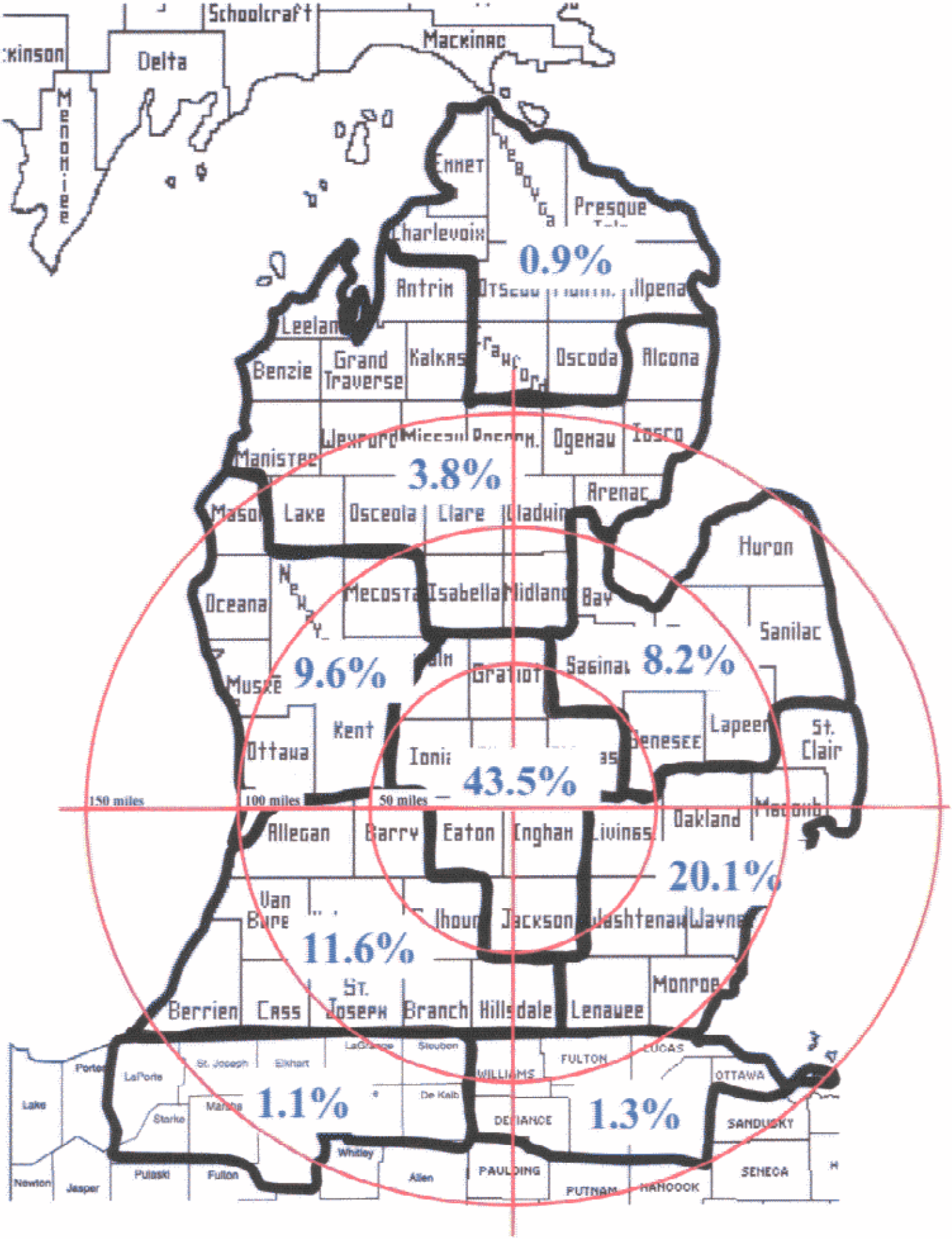


Figure 5 MSU VTH MARKETING REGIONS: CANINE CANCER CASES

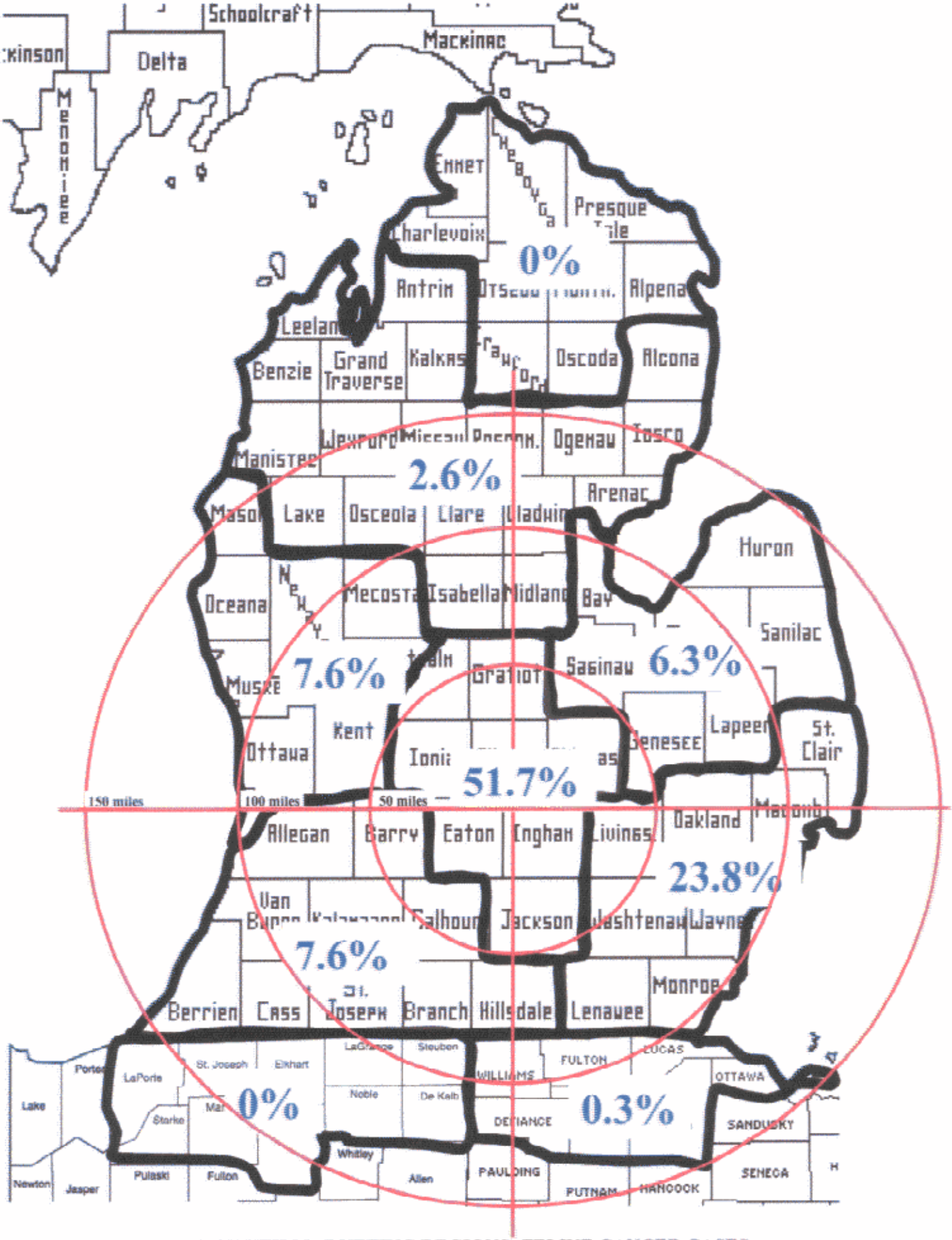


Figure 6 MSU VTH MARKETING REGIONS: FELINE CANCER CASES

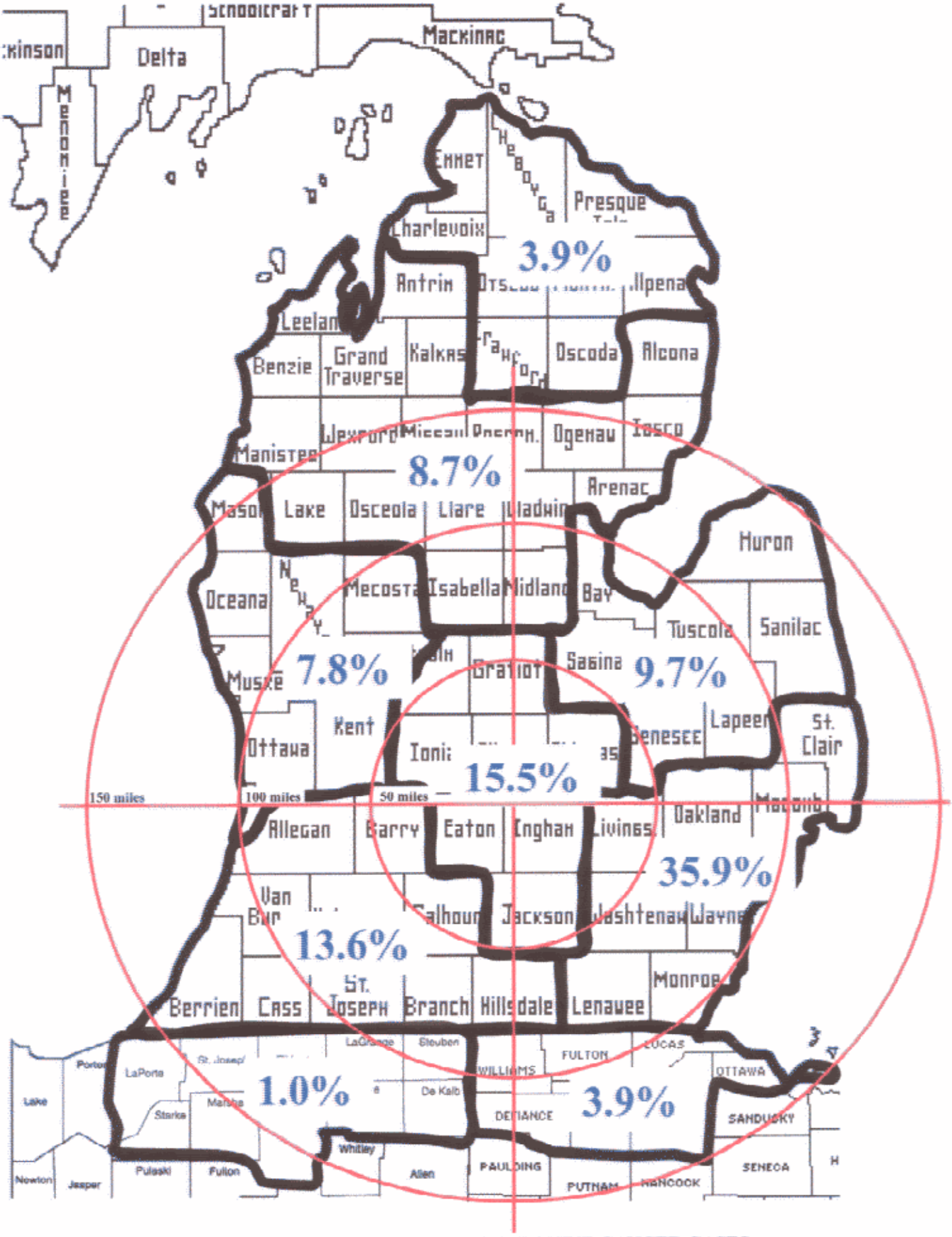


Figure 7 MSU VTH MARKETING REGIONS: EQUINE CANCER CASES

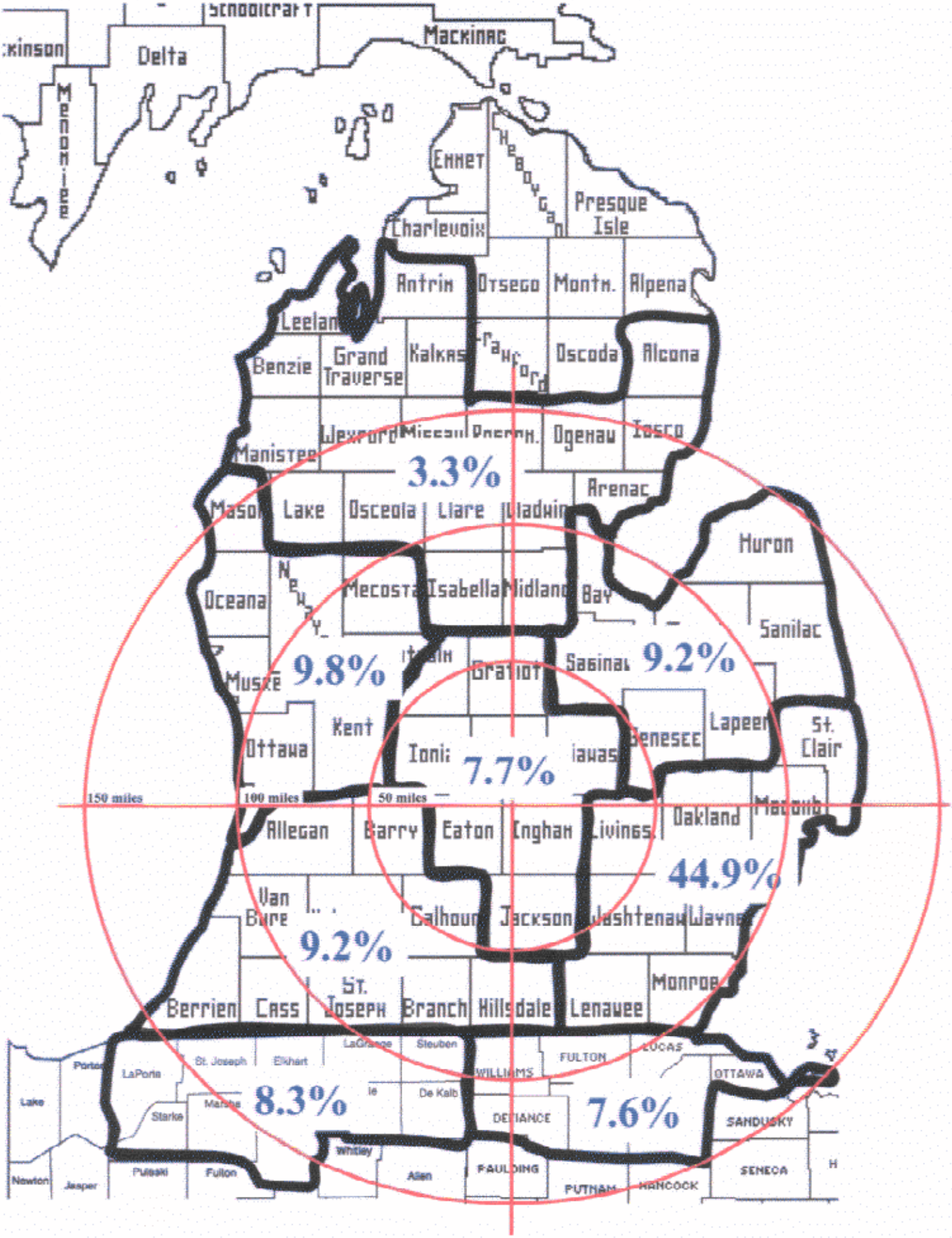


Figure 8 **MSU VTH: PROJECTED TOTAL DOMESTIC ANIMAL CANCER INCIDENCE**

euthanasia rates. Annual cancer population is established using the annual incidence factors reported in Table 3 for the estimated pet population from Table 4. (see Table 5)

Table 5 **Estimated Annual Cancer Pet Populations**

	Dogs	Cats	Horses
Total Region	16,751	5,505	349

Source: AVMA 1997 U.S. Pet Ownership & Demographics Sourcebook, pp. 10,16,27,135
Source: Michigan Equine Monitoring System: Michigan Equine Survey, 1996

On an annual basis, there will be a total of over 22,600 potential new malignancies within the MSU marketing area. The breakout by key marketed area is represented in Figure 1.8 with the Detroit Metro area accounting for nearly 45% of all cancer cases. The literature tells us that 21% of diagnosed cancer cases are euthanized[8] and, on average, 26% are skin tumors that may be treated [surgically] by local practitioners.[9,10] If we assume that up to one third (33%) of owners choose not to pursue referral treatment, we still have a potential referral pool of approximately 4,500 cases per year. After conducting local interviews, we were able to ascertain that each of the three private oncology practices average 400 new malignancy cases annually. Therefore, MSU's potential pool of referral clients, according to this method of estimation, is still close to 3,300 cases per year.

To come to a conservative number based on the same projections we can focus on the percent of population being serviced [Minimum Market Coverage]. If 47% (21% + 26%) of the total cancer incidence are either euthanized or treated by their primary practitioners, that would leave a total referral pool of 11,980 animals, annually. Since we know that the three active oncology services in Michigan are treating approximately 1,200 of these animals, annually, we know that just over 10% are being cared for currently. If we made a modest assumption that, with the opening of MSU's oncology service, 25% of these animals would receive treatment, then MSU's portion of

the annual caseload would come to nearly 1,800 cases. [11,980 * 0.25 = 2,995 less 1,200 to the private oncology services]

Another means of determining caseload projections is to compare Colorado State University's market area pet population and the ratio of pet owning households-to-caseload to Michigan State's projected pet populations.[11] Using the previous calculations for determining pet populations, we find that MSU's market area pet population is projected at 2½ times larger than that of CSU within a 150 mile radius of each institution. (see Table 6)

Table 6 **Comparative Market Area Pet Populations**

	Dogs	Cats	Horses
MSU	2,022,308	2,138,846	136,293
CSU	827,475	824,622	96,075

Source: AVMA 1997 U.S. Pet Ownership & Demographics Sourcebook, pp. 10,16,27,135
Source: Michigan Equine Monitoring System: Michigan Equine Survey, 1996

We know from discussions with staff at CSU that their caseload of new malignancies is between 1,100 and 1,200 cases per year. We also know that they also have three board certified oncologists in private practice within 150 miles of the VTH. On average, only 50% CSU's caseload is generated by households within Colorado. Applying this to the surrounding household population, we determined that CSU's indigenous caseload is generated from approximately 0.047% of the households within their market area. Applying the same numbers to MSU's household population base, we could expect our new malignancy caseload to be approximately 1,833 cases annually. . (see Table 7)

Table 7 **Indigenous Caseload Calculations**

	Caseload as a % of Total Market	# of Households	Caseload
CSU	0.047%	1,285,119	600
MSU	0.047%	3,925,634	1,833

Source: United States Census Bureau Website: http://www.census.gov/datamap/www/

Using this and the previous estimate methods, MSU's potential oncology caseload can be expected to be between 1,800 and 3,300 cases annually.

We also compared the median household incomes (HHI) and cost of living indices (COLI) between Colorado and Michigan to insure that extrapolations could be made without the need for modification calculations. The median HHI for Colorado in 1998 was $46,599, which indexed at 119 to the total U.S. median and ranked the state as the 6th highest in the nation. Michigan's median HHI in 1998 was $41,821 with an index of 108 to the total U.S. and a ranking of 13th in the nation.[12] The COLI of each state was very comparable. When compared to the U.S. average, Michigan had an average cost of living index of 109 and Colorado was slightly lower at an average of 105.[13] The two largest cities in each state, Detroit and Denver, indexed at 113 and 109, respectively. With the similar COLI and HHI of Colorado and Michigan, we feel the comparison of caseload to population is valid for future revenue calculations.

Projected Revenue Determination

For the purposes of this analysis on revenue potential, we will use a conservative caseload range of 1,500 to 2,000 new MSU malignancies per year. In order to accurately project the annual revenue for the MSU oncology service, we must first develop an average revenue calculation per case. This has been done through a combination of pricing strategy surveys with other veterinary college oncology services as well as market area surveys with Michigan private oncology service providers. An average revenue per case must take into consideration all aspects of oncological services to include case work-ups, chemotherapy, radiation therapy and palliative therapy to name a few. This analysis was conducted with the understanding that many variables go into determining the costs associated with any and all of the above treatment regimens. We must, however, come to an acceptable average per case to project revenue for MSU's service.

Among the responding veterinary colleges, the following averages were determined:

Work-ups	$100 to $150
Chemotherapy series	$500 to $1,500
Radiation series	$1,000 to $3,500
Brachytherapy	$400 to $1,000
Anesthesia (per series)	$500 to $700

Among the private practitioners in Michigan, the following averages were developed:

Work-ups	$250 to $400
Chemotherapy series (all inclusive)	$1,000 to $3,000
Radiation series (all inclusive)	$2,850 to $3,900

With this information, we were able to create a conservative estimate of the average case revenue potential for the MSU oncology service of $1,200 per case by choosing a reasonable mid-range from the reported strategies. The upper and lower total revenue estimates, based on our previous caseload assumptions, are illustrated in Table 8. It should also be noted, at this time, that the definition of a case for our caseload calculations is treated as a complete series or treatment program for an individual animal and not each individual visit during a program.

Table 8 **Annual Revenue Calculations**

	Estimated Annual Caseload	Estimated Revenue per case	Total Estimated Annual Revenue
Lower End	1,500	$1,200	$1,800,000
Upper End	2,000	$1,200	$2,400,000
Average	1,750	$1,200	$2,100,000

Source: AVMA 1997 U.S. Pet Ownership & Demographics Sourcebook, pp. 10,16,27,135
Source: Michigan Equine Monitoring System: Michigan Equine Survey, 1996

Regional Expectations

The majority of Michigan State University's past VTH revenue has come from the mid-Michigan region. (see Figure 9) As has been indicated earlier, the majority of cancer cases are expected to

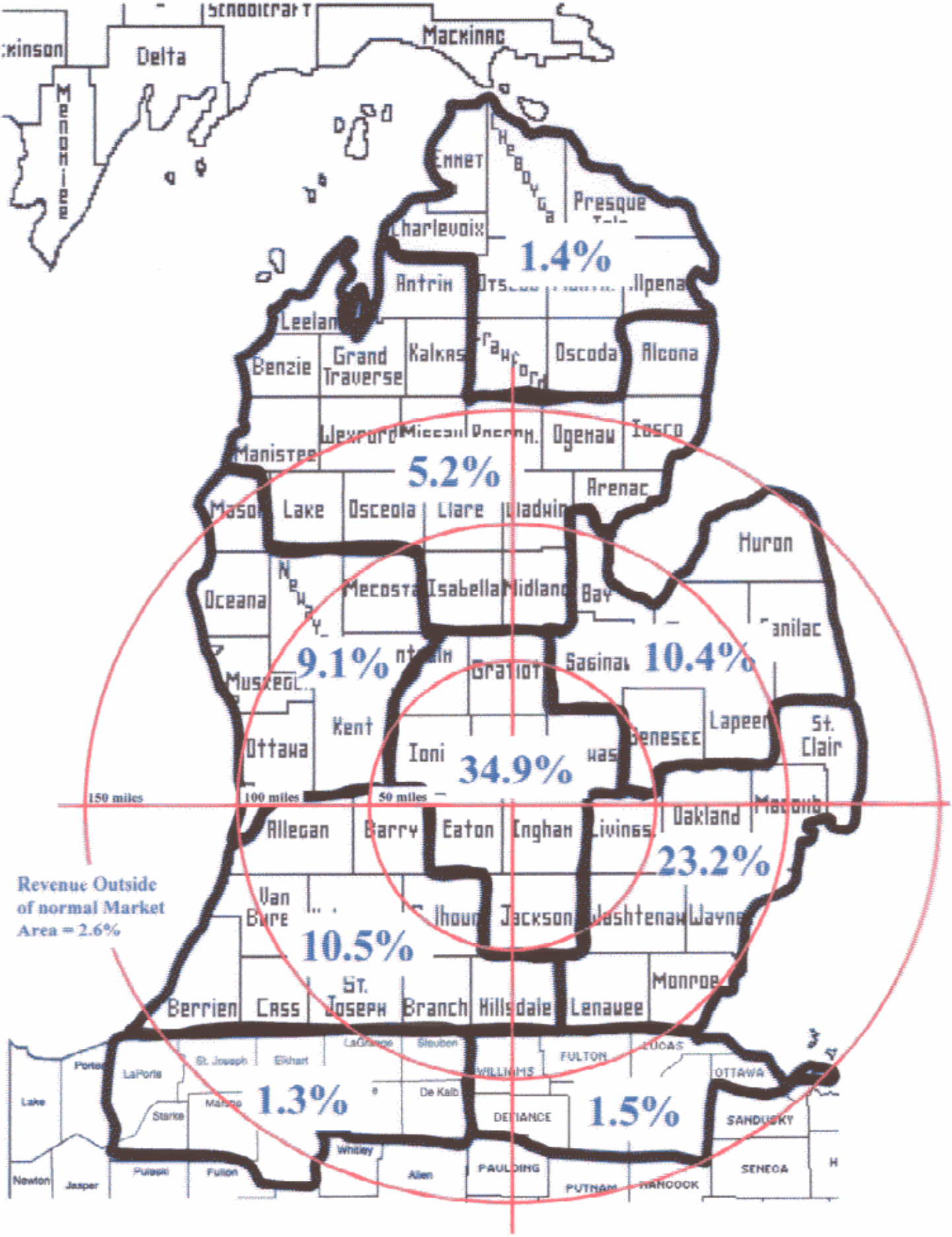
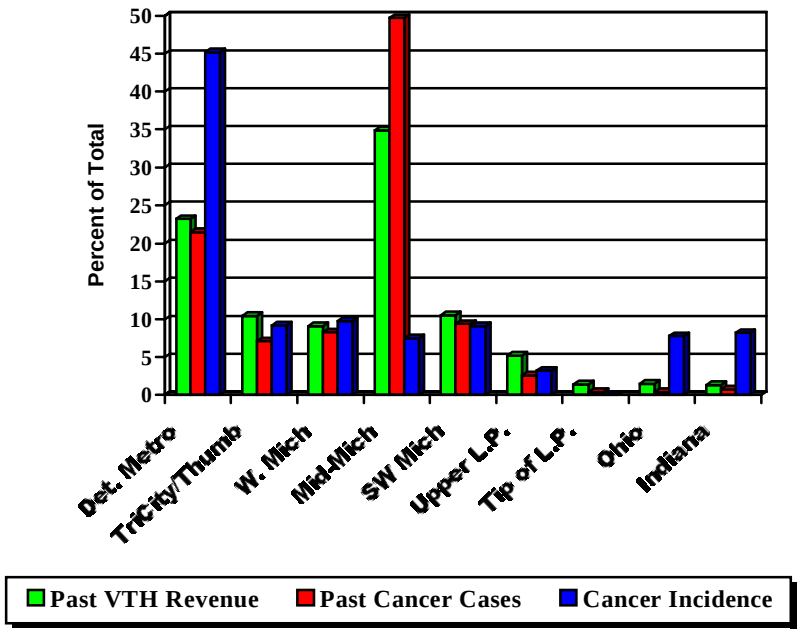


Figure 9 MSU VTH: 1999 TOTAL REVENUE DISTRIBUTION

originate out of the Detroit Metro region. This is a fact we must keep in mind as we move toward marketing the new VTH service. On a percent per key market area basis, we can plot our past total VTH revenue against past cancer cases versus future cancer cases to determine which markets are over- or under-developed. (see Figure 10) What this figure indicates is that the mid-Michigan region is already highly over-developed in relation to the future opportunity while the Detroit Metro region as well as Ohio and Indiana are all very under-developed. These findings will assist us, as we begin to develop our marketing plans, in knowing how to focus our resources for optimal return.

Figure 10 **Percent Breakouts by Market Area: Comparison of Total Past VTH Revenue v. Past Cancer Cases v. Future Cancer Incidence**



Discussion:

Although the study caseload estimates varied depending upon method used, the projections are reasonable in their range. In fact, the three private oncology services in Southeastern Michigan have experienced as much as four to six week back logs in new case admittance due to the overwhelming demand for oncology services in Michigan. Interviews with referring practitioners

statewide have indicated that, in many cases, pet owners may often forego prolonged cancer treatment on older animals if they would be required to drive more than three hours to get to the service (i.e., Metro Detroit hospitals). These animals may be converted into cases for a more centrally located service such as Michigan State.

Caseload estimates used for revenue projections were less (at the low end) than in any of the projection methods. Utilizing percentage breakouts derived from the literature, we projected a healthy 3,300-case/yr. estimate. Another method, the minimum market coverage method, gave us a more conservative 1,800 cases/yr. Finally, a direct comparison to Colorado State's in-state service puts estimates at 1,833 cases per year. In our calculations, however, we used 1,500 new cases per year as a low end and still project revenue of $1.8M per year. At the top end, we used 2,000 new cases per year generating in the neighborhood of $2.4M annually.

Market Opportunity

The potential opportunity involved with a new oncology service at MSU is attractive. To optimize that opportunity MSU must allocate its resources and efforts in markets which will yield the greatest return. In order to prioritize market areas, we calculated development indices based on comparisons between past cancer cases and expected future cancer incidence. Key market areas were segmented into three primary opportunity categories. Markets in the 'Growth & Opportunity' category represent those, based on our indices, which are under developed and provide the greatest potential increase for caseload at MSU. Of our key market areas, the Detroit Metro area, Ohio and Indiana offer the greatest short-term opportunity. The Tri-City/Thumb area and Western Michigan also show growth potential. This is especially true for Western Michigan due to MSU's prime geographic location along any travel path to the Detroit area oncology services.

Based on interviews with oncology service providers in the Detroit Metro area, we find that there is a real backlog of clients waiting to begin treatments. The current service in Michigan are also heavily chemotherapy oriented with some augmenting low-dose radiation capabilities. A new oncology service located at MSU will be able to dovetail with these services offering alternative high-dose radiation capabilities and new technologies as well as affording much needed caseload overflow relief. In this sense, the new MSU service can be viewed more as complementary than directly competitive.

The 'Maintenance' category includes markets that are currently over developed and should not require additional resources beyond what is currently being employed. It is important to note that Maintenance does not mean to imply neglect. The Maintenance markets are often the 'bread and butter' of any service or business and should be carefully monitored to insure constant revenue streams. It is not surprising that the Mid-Michigan area falls into this category. Due to its close proximity to MSU, this area has a cancer opportunity index of 662 and currently accounts for almost 35% of the Veterinary Teaching Hospital's total revenue. The other market area, Southwestern Michigan indexes just slightly over 100 and does not show increased opportunity at this time. This may be partially due to the siphoning effect of oncology services at the University of Illinois and Purdue University drawing from the potential caseload pool.

The final market category is referred to as 'Low Priority'. These markets, also not to be simply neglected, are however, small enough to play a minor roll in any large-scale marketing efforts. Low Priority markets are often those, which, due to either distance from the service or demographic/economic make up, account for less than 10% of current revenue. In this case, distance and low population densities seem to be the key factors at work in the results accounting for the designation of the Upper Lower Peninsula and Tip of the Lower Peninsula areas as Low Priority. Table 9 summarizes our findings.

Table 9 **Market Opportunity Indices: Past MSU Cancer Cases indexed to Expected Cancer Incidence**

Key Marketing Area	Growth & Opportunity (under developed)	Maintenance (over developed)	Low Priority
Ohio	5.1		
Indiana	8.5		
Detroit Metro Area	47.6		
Tri City/Thumb Area	77.2		
Western Michigan	84.7		
Mid-Michigan		662.6	
Southwestern Michigan		103.3	
Upper Lower Peninsula			81.2
Northern Tip of Lower Peninsula			2.5

Summary:

Dr. William R. Pritchard, during an address to the American Veterinary Medical Association challenged: "If every U.S. veterinary college would identify even one strength based on unique resources or strengths, and commit the college to achieving the status of a world-class center on that subject, veterinary colleges as a whole would soon make a major impact on science and human medicine and would contribute much more to animal production and health." He went on to say, "A center of world-class quality would command research support from traditional funding sources and private donors; would attract outstanding faculty, professional and graduate students; and would be a superb learning environment for all students."[14] Michigan State University should continue to pursue the establishment of an oncology service for the VTH in earnest. If minimum revenue projections materialize, staff funding should not be seen as a concern. Given the lack of any truly 'world-class' cancer centers in the Midwestern United States or Canada, perhaps MSU should set its sites high as they move forward and assume responsibility as a leader in the oncology field.

As the project moves forward, consideration should be given to focusing on the key market areas for early advertising and fund raising. A sense of anticipation should be cultivated in the Growth & Opportunity markets, which will culminate in the ultimate opening of the oncology service. Formal marketing plan development should be included in the ongoing phases of public relations and fund raising to insure proper focus and a smooth transition once the service is activated. In all, an oncology service at Michigan State University is medically necessary, expected by referring practitioners and potentially highly profitable. It is the recommendation of this study that MSU continues pursuit of this service.

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APPENDIX A

Telephone Interview Questions:

1.) Do you see a VTH Oncology Service as a positive move by MSU?
2.) Can you see your practice referring to MSU Oncology?
3.) Where do you refer oncology cases to now?
4.) Do you have any "wish list" suggestions for the new service?

Verbatim Comments:

Grand Rapids	Few patients will take advantage Most can't afford it Not for it! Would not be using this service
Metamora	Maybe one case per year seen Most can't afford
Saginaw	Very interested! Now referrals go to OVRS Would use!
Okemos	Sure! Now send to Detroit Need oncologist for first investigation May take over after first treatment
Eagle	Yes, need! Referral to Detroit now More people are willing to pursue
Flint	Most clientele can't afford May have cases in future if service is open
Bay City	Would use Now referring to Detroit See many patients but lower income
Lansing	Will use! Have used Mostosky Currently refer to Detroit or treat themselves
Kalamazoo	Need oncologists! Will use! Have called U of I and P.U. and C.S.U. in past
Ypsilanti	Would use Would like consultations Needs to be affordable
Madison Heights	Will support if they have integrity and good service– timely! Critically important to have oncology at MSU!

Saginaw	Would use Increased incidence within clinic – 1 per week consult Oncology consult with histopath results would be valuable and essential
Rochester	Potential is there – very supportive Have been referring to OVRS Send to OVRS now and may continue for client's convenience
Milford	They are for the service Will send to MSU
Grand Rapids	In favor Have referred to MVS and Dr. Beck Getting more client interest
Vicksburg	Yes! Have done some chemotherapy Have referred to Purdue and Detroit Affluent clientele
Livonia	Benefit to hospital Now referring to OVRS and Dr. Beck Will send/recommend to MSU
Farmington	Absolutely! We always start with MSU as referral option Seeing increase in cancer diagnoses Need quick turnaround – no long waits to get in
Grayling	Need oncologist at MSU Look for MSU to begin treatment and run consult Don't undercut Detroit prices
Midland	Good idea! Do refer out to OVRS Don't make us wait, and follow through
Brighton	Very excited Refer to OVRS We see quite a few cancer patients now—we'll keep you busy
Kalamazoo (Eq)	Might use Most horses have squamous cell carcinomas; easy surgery or euthanasia Sometimes more serious
Bridgeport (Eq)	Some cases will use Not overwhelming amount of cases (not even weekly) 75% of cancers seen are sarcoids or melanomas – cryotherapy
Ann Arbor	Would use Have referred to Dr. Beck or OVRS Consultation will be helpful

Howell	Not a bad idea Refer to Dr. Beck Quick turnaround on consultation
Warren	Will probably send Use OVRS but they're busy See more client willingness to treat
Mt. Pleasant	Have some patients which need Would use
Centerville (Eq)	Don't see much use Won't send much to MSU
Metamora (SA/Eq)	Would love it! Need alternative to OVRS – too busy Can see an increasing need in equine
Fowlerville (SA/Eq)	Would see definite need Couple cases/yr for equine Now SA goes to OVRS
St. Johns	Great idea! Do see a lot of cancer, but not successful in getting clients to commit
Battle Creek	Interested Certain people will do it Do radiation with Dr. Mostosky None to Detroit
Traverse City	Terrific idea! Send to OVRS rarely Have 2-3 cancers/wk
So. Haven	Good idea Referring to MSU and OVRS now
Howell	Definitely something we need Refer to OVRS Increase in commitment
So. Lyon (SA/Eq)	Very beneficial Refer to OVRS Equine is cost-benefit factor
So. Lyon (Eq)	May not use for treatment Majority sarcoid and melanoma Cost/benefit prohibitive

APPENDIX B

ONCOLOGY PRICING STRATEGIES: VETERINARY TEACHING HOSPITALS

	CVM #1: Midwest	CVM #2: West	CVM #3: South	CVM #4: Midwest	CVM #5: East	CVM #6: West	CVM #7: South
Staffing: FTE Veterinarians - Board Certified:	1	4 faculty;2.0FTE	2 IM diplomats	1	3	4.5	2
Staffing: FTE Veterinarians - Non-Board Certified:	6	3 residents		1 Onco Surgeon + 4 Res + 2 Interns	0	5.5	0
Staffing: FTE Technicians:	5	4 staff; 3.5FTE	1 FT nurse	4 FT	5	8.5	3.5
Annual New Malignancy Case Load	1,200	n/a	780	500		1,100	
Annual Revenue From Oncology Services	$140,000	$300,000		$960,000		~$2M (~20% of total VTH)	$798,443
Standard Oncology Examination	$21.00	$70.00	IM appt. $60	$30.50	$55.00	$52.00	$140.00
Referral Oncology Examination	$60.00 - $95.00	Same		$59.00	$80.00	$52.00	$140.00
Weekly Recheck Examination	$21.00 - $33.00	N/A	$56, $42, $36	$22.00	$30.00	$21.00	$35.00
Three Week Recheck Examination	$21.00 - $33.00	N/A		$35.50	$30.00	$21.00	$35.00
Post Radiation Therapy Examination	na	N/A	N/A	$36.00	$30.00	$21.00	$35.00
Other		Recheck exam/progress check=$45	Chemo Major (indwelling cath, infusion) $56.00			Biopsy= $35-68 + Anesth.	
			Chemo Minor (butterfly) and recheck $42.00, $36.00				
Consultation - In House	$255.00	variable	n/a	$6.50	$28.00	$52.00	$20.00
Consultation - Telephone	na	N/A	n/a		$46.00	$25 - $50	$0.00
Fine Needle Aspirate	$9.00	$35 (lab fee)	$14.00 per mass		$40.00	$39.00	$13.00
Cytology	$14.00	$35 (lab fee)	$18.00	$19.00	$29.00	$24.00	$17.00
Bone Marrow Aspirate	$14.00	$45 (lab fee)	$32	$37.00	$85.00	$22.00	$37.00
Histopathology	$5.00 - $28.00	$60-75(path fee)	$33	$43.00	$50.00	$33.00	$60 - $90
Malignant Effusion Drainage	$20.00 - $125.00	$50	$40 and up	$32.50			$40.00
Other		Variety of immunohistochem services=Variable	Body mapping (map in medical record)=$30 and up				Biopsy $30 - $50
Chemosensitivity Assay	na	n/a	n/a				
Chemotherapy Administration Fee	$8.00 - $33.00	$40	see exam fees	$6.00 - $21.00		$39.00	$20 - $35
Other		cutaneous mass excisions= $60	access port administration = $26	Txt Plan Fee: $400			
Radiation Therapy - per treatment	na	$95			$130.00	$88.00	$100.00
Radiation Therapy - per series	na	$950	$3,500 and up	$1,800 - $2,700	$2,080 -$3,000	$1,320 - $1,760	$2,500 - $3,000 inclusive
Radiation Therapy Consultation	na	N/A			$100 - $200	$231.00	$140.00
I-131 Therapy	$675.00	$550.00	$600.00		$1,450.00	$1,200.00	
Cobalt Therapy Fee:	na	N/A					$100.00
Brachytherapy	na	$415	$600-$1000				
Anesthesia	$10.00 - $27.00	$630/series	$65, addl hr $15		$155 - $220	$44/hr	included in fee
Oncology Boarding (if different From general Board)	na	reg hosp fees	$18-$200		$20 - $25	$23.00	$40.00
Other			Boarding fees adjust to size and location of patient (i.e. ICU vs. the wards)	Palliative Therapy: $750			