

A GOAL-ORIENTED EVALUATION OF THE FAMILY MEDICINE RESIDENCY  
PROGRAM AT THE SAINT LOUISE CLINIC

by

Sarah T. Murfree

A Thesis Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Master of Science in Health and Human Performance

Middle Tennessee State University  
August 2016

Thesis Committee

Dr. Norman L. Weatherby, Chair

Dr. Bethany A. E. Wrye

## ACKNOWLEDGEMENTS

I would like to thank Dr. Christopher Dunlap and Dr. Pamela Singer at the family medicine residency program at the Saint Louise Clinic for allowing me to conduct this evaluation. I would also like to thank my thesis advisory committee, specifically my chair, Dr. Norman Weatherby for guidance during this project.

## ABSTRACT

Medical residency programs have challenges including cost, quality, and physician shortages. Family medicine residency programs provide training in many specialty areas to ensure physicians have the knowledge needed to treat the whole family. Program evaluations can identify challenges, areas for improvement, and successes in residency programs.

The Family Medicine Residency Program at the Saint Louise Clinic in Murfreesboro, TN, was formed by a partnership of the University of Tennessee Health Sciences Center and Saint Thomas Health. The first class of eight family medicine residents began work in July 2015.

This goal-oriented evaluation was guided by the Center for Disease Control's Framework for Program Evaluation. The evaluation answered two primary evaluation questions: identify the processes in place to achieve the program's mission to develop skilled, qualified, and compassionate family medicine physicians and evaluate the program's compliance with goals, target milestones, timelines, and deliverables during the planning and implementation phases. Interviews with five stakeholders identified secondary evaluation questions. Two areas for improvement were identified from the ten secondary evaluation questions. Program administrators will use the evaluation results to focus on areas for improvement.

## TABLE OF CONTENTS

LIST OF FIGURES .....	v
LIST OF TABLES .....	vi
CHAPTER I: INTRODUCTION.....	1
Evaluation Goals.....	2
CHAPTER II: LITERATURE REVIEW .....	3
Graduate Medical Education .....	3
Family Medicine.....	8
Evaluation.....	10
CHAPTER III: METHODS.....	14
CHAPTER IV: RESULTS.....	18
CHAPTER V: DISCUSSION.....	32
REFERENCES .....	35
APPENDICES .....	41
Appendix A: Centers for Disease Control and Prevention’s “A Framework for Program Evaluation” .....	42
Appendix B: Evaluation Plan.....	43
Appendix C: Stakeholder Interview Guide .....	48
Appendix D: IRB Approval .....	50

## LIST OF FIGURES

Figure 1. Logic Model.....	20
Figure 2. Estimate of Increase in Family Medicine Physicians within 50 Miles of the Saint Louise Clinic, 2018 – 2028.....	33

## LIST OF TABLES

Table 1. Stakeholder Interview Outcomes.....	19
Table 2. Secondary Evaluation Questions.....	21
Table 3. Evaluation Question Assessment Results.....	23
Table 4. Metaevaluation.....	29

## CHAPTER I: INTRODUCTION

The Saint Louise Family Medicine Residency Program in Murfreesboro, TN was formed as a partnership between the University of Tennessee Medical School and Saint Thomas Health Care. The clinic has almost 5,000 registered patients in 2016. Of the registered patients, 48% are uninsured and 23% are of Hispanic or Latino ethnicity. Such a diverse population with a high proportion of uninsured patients makes this new Family Medicine residency program ideal for an evaluation.

The successful Family Medicine physician must have a wide range of medical knowledge spanning many specialties in order to treat a diverse patient population. Because of the ability of the Family Medicine physician to treat the entire family, this specialist is particularly valuable in rural areas with limited access to medical care. A considerable challenge to this specialty is the well documented Primary Care Physician shortage for medically underserved populations. According to the Health Resources and Services Administration, there are approximately 6100 Primary Care Health Provider Shortage Areas (DHHS HRSA, 2015).

In a time of ongoing change in the healthcare industry, residency programs are challenged to quickly adjust to ensure they produce residents well prepared for a healthcare environment with new technologies and practice models. Residency programs must also keep cost under control as increasing attention is paid to all healthcare cost with movement towards pay for performance models.

### *Evaluation Goals*

The implementation phase of the program began when the inaugural class of eight family medicine residents began their residency at the Saint Louise Clinic in July 1, 2015. This evaluation with a goal-oriented approach will follow the well-established Centers for Disease Control and Prevention's Framework for Program Evaluation in Public Health (CDC, 1999). The primary goals of this evaluation are to identify processes in place to achieve the Family Medicine Residency Program's mission to develop skilled, qualified, and compassionate Family Medicine physicians and to evaluate compliance with goals, target milestones, timelines, and deliverables during the planning and implementation phases of the residency program.



## CHAPTER II: LITERATURE REVIEW

### *Graduate Medical Education*

*Background.* Graduate Medical Education in the United States owes much of its early formation to William Osler. Osler came to the University of Pennsylvania in 1884 after receiving his degree in Medicine from McGill University, studying in Europe for approximately 18 months, and spending 10 years on the McGill Faculty of Medicine as a professor teaching the fundamentals of medicine (Bliss, 1999). While at McGill, Osler became known for his efforts to reform medical education. The Johns Hopkins Hospital was founded in 1889 and The Johns Hopkins University School of Medicine followed quickly in 1893. Osler was appointed as physician-in-chief and professor upon the opening of Johns Hopkins. At Johns Hopkins, Osler was the force behind the implementation of the clinical clerkship, the precursor to today's graduate medical education. Johns Hopkins quickly became the premier medical institution in the United States (Bliss, 1999).

Medical education including graduate medical education further evolved in the United States following issuance of a report in 1910 titled *Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching* which became known as the Flexner Report. Abraham Flexner, a headmaster from a private high school in Louisville, Kentucky, was hired by the Carnegie Foundation to evaluate the current status of medical education (Irby, Cooke, & O'Brien, 2010). The Flexner Report outlined the following predominate issues with medical education: the United States has an excessive number of physicians (many of which are poorly trained), for-profit medical schools often provide inadequate training, the cost of

University based medical schools is too low and should be increased to accommodate the rising cost of teaching modern medicine, and hospitals should better accommodate teaching including employing dedicated teachers (Flexner, 2002). Following the Flexner Report, approximately one third of the existing medical schools closed (Irby et al., 2010).

Founded in 1915 in Rochester, MN, the Mayo School of Graduate Medical Education, formally known as The Mayo Foundation for Medical Education and Research and the Mayo Foundation, revolutionized residency program design by using a parallel plan allowing all residents to complete the program instead of the pyramid system commonly used during this era which systematically reduced the number of residents to ensure there were less senior than junior residents. The Mayo School of Graduate Medical Education placed a high priority on evaluation of the residents and begin using the six core competencies currently in use by the Accreditation Council for Graduate Medical Education (Boes, Long, Rose, & Fye, 2015).

Today, graduate medical education programs are accredited by the Accreditation Council for Graduate Medical Education. The Accreditation Council for Graduate Medical Education is an independent organization established in 1981. In 2014, approximately 700 sponsoring institutions had a total of 9,600 medical residency and fellowship programs accredited by the Accreditation Council for Graduate Medical Education (Accreditation Council for Graduate Medical Education: About, 2015).

*Cost.* Graduate medical education is expensive. Along with the cost of healthcare in the United States, the cost of graduate medical education is increasingly being analyzed. According to the June 2014 report “Graduate Medical Education that Meets the Nation’s Health Care Needs” from the Institute of Medicine (IOM), graduate medical

education cost the public approximately \$15 billion in 2012 with the majority of this funding coming from the Medicare (IOM, 2014). In 2012, Medicare paid approximately \$2.8 billion via a direct fund and \$6.8 billion via an indirect fund to teaching hospitals to support graduate medical education. Funding of graduate medical education was included when Medicare was established in 1965 (Mullan, Chen, & Steinmetz, 2013). Until 1983, Medicare's financial support for graduate medical education was included in the per-patient payments made to teaching hospitals. In 1983, Medicare's Prospective Payment System was introduced. Under the Prospective Payment System, hospitals are reimbursed by Medicare based on diagnoses instead of the retrospective cost-based reimbursement system. The cost of graduate medical education could not reasonably be included in diagnoses cost; therefore, Medicare created the direct and indirect funds for graduate medical education payments (Rich et al., 2002). The direct fund is calculated based on the number of residents, hospital specific cost of each resident including administrative cost, and the proportion of Medicare patients compared to the hospital's total inpatient population. The hospital specific cost of each resident was determined during the 1983-1984 fiscal year (Centers for Medicare and Medicaid Direct, 2014). Except for inflation adjustments, these negotiated cost for Medicare's direct payments has not changed since 1984 (Rich et al., 2002). The purpose of Medicare's indirect fund is to provide additional financial support due to the higher cost of patient care at teaching hospitals. The indirect funds are based on the number of residents in comparison to the hospital size determined by number of patient beds (Centers for Medicare and Medicaid Indirect, 2014). The initial indirect fund payment gave teaching hospitals an additional 11.59% of the hospital's total Medicare payment per every 10% increase in the

proportion of residents per patient beds (Rich et al., 2002). This reimbursement amount has decreased over time to 5.5% in 2015 (Centers for Medicare and Medicaid Indirect, 2014).

Due to concern that the United States had an excessive number of physicians, the number of resident positions that Medicare includes in its direct and indirect fund calculations was capped by the 1997 Balanced Budget Act. As a result over time, the indirect fund paid to teaching hospitals began to vary widely due to changes in the number of hospital beds and total amount of Medicare payments. Mullan et al. (2013) determined that Medicare pays an average of \$112,642 per resident in the United States. This amount varies widely per state. For example Louisiana receives only \$63,811 per resident while Connecticut receives \$155,135 per resident (Mullan et al., 2013). Despite these differences in Medicare reimbursement, all residency programs are held to the same quality requirements by the Accreditation Council for Graduate Medical Education.

Along with the increasing focus on healthcare cost, there have been many calls to reform Medicare's graduate medical education payment system. Notably, the Institute of Medicine recommends substantial reforms to graduate medical education funding and oversight. One driver of these recommendations is the general lack of fiscal accountability from Medicare (IOM, 2014).

*Quality.* In 1999 a report from the Institute of Medicine (IOM) titled "To Err is Human: Building a Safer Healthcare System" drew attention to problems with patient safety and medical errors in the healthcare system. The IOM report highlighted two studies which estimated that preventable medical errors result in a minimum of 44,000 and possibly up to 98,000 deaths in hospitals yearly (IOM, 1999). The number of

medical errors may be higher at institutions with graduate medical education programs. In a review of death certificates from 1979 to 2006, Phillips and Barker (2010) found a 10% increase in deaths due to medication errors during the month of July inside medical facilities located in US counties with teaching hospitals. Phillips and Barker concluded that the increase in medication error fatalities is due at least in part to the new class of residents beginning work at teaching hospitals during July (Phillips and Barker, 2010).

Resident work hours and patient handoff procedures have been identified as possible sources of increased medical errors. In 2003 and again in 2011, the Accreditation Council for Graduate Medical Education (ACGME) implemented new standards for maximum work hours for medical residents. In 2011 along with the further reduction in allowable work hours, the ACGME required accredited programs to ensure patient safety during patient hand-offs from the outgoing to incoming resident via enforcement of hand-offs protocols and strategic clinical assignment of residents to reduce the number of hand-offs (Accreditation Council for Graduate Medical Education, 2014). A study by Starmer et al. (2014) provides an example of the importance of mandating use of high quality handoff procedures. This study reviewed a new handoff process, titled I-PASS, implemented by residents in nine hospitals. Starmer et al. (2014) found a 23% reduction in medical-errors and a 30% reduction in preventable adverse events following implementation of the I-PASS handoff process.

A 2005 study by Jagsi et al. (2005) provides insight to the residents' perceptions of the causes of medical errors. A survey administered to residents and fellows in 76 programs found 24% reported that a patient in their care experienced an adverse event caused by a medical error. Of the residents and fellows reporting experience with an

adverse event, 77% felt they were at least partly responsible for the medical error. The residents and fellows included working too many hours, insufficient supervision, and patient handoff deficiencies as commonly reported causes of the medical errors. The study authors found that residents and fellows working more than 80 hours per week were 65% more likely to have a patient in their care experience an adverse event. This increase significantly exceeds that amount expected due to exposure to increased number of patients because of the long work hours (Jagsi et al., 2005). The Accreditation Council for Graduate Medical Education allows residents to work an average of 80 hours per week averaged over a four week period and these allowable duty hours remained unchanged in the 2011 work hour revisions. Additional considerations related to managing fatigue, resident supervision, and a limit of consecutive duty hours to 16 hours from 24 hours for residents in their first year was included in the 2011 revisions (Accreditation Council for Graduate Medical Education, 2014).

### *Family Medicine*

*Residency.* The American Academy of Family Physicians describes Family Medicine as a specialty dedicated to treating persons of all ages and genders using integrated care via a mutual relationship between the physician and his/her patient. The board certification for Family Medicine was recognized in 1969. (American Academy of Family Physicians, 2015). Currently there are 490 Family Medicine Residency programs in the United States. In 2015, 3,195 post-graduate year 1 (PGY-1) residency positions were available and 3,039 of those positions were filled by recently or soon-to-be medical school graduates. The number of PGY-1 Family Medicine residency positions increased

by 11.7% from 2014 to 2015. Since 2011, the number of PGY-1 Family Medicine residency positions has steadily increased from 2,708 positions in 2011 to 3,195 in 2015 at an average increase of 11.6% each year (National Resident Matching Program, 2015).

Family Medicine Residency programs are accredited by the Accreditation Council for Graduate Medical Education (ACGME). ACGME program requirements for Family Medicine Residency include a minimum length of 3 years. In order to obtain and maintain certification, sponsoring institutions of Family Medicine Residency Programs must ensure the program has a qualified Program Director, faculty, adequate facilities and appropriate patient population. Because Family Medicine physicians treat patients of all ages and genders, training with a variety of specialties is required during residency. ACGME requires that residents have experience with the following specialties and patients: emergency medicine, geriatrics, pediatrics including experience with newborns, surgical patients, patients with musculoskeletal problems including sports medicine, gynecology, obstetrics, dermatology, and psychiatry (Accreditation Council for Graduate Medical Education: ACGME, 2015). Family Medicine residency programs are inherently complex because of the required rotations through many specialties.

*Physician Shortage.* A study by The Robert Graham Center estimates nearly 52,000 physicians in addition to the 209,000 physicians in practice in 2010 will be needed in 2025 due to population growth, an aging population and expansion of insurance coverage (Petterson et al., 2012). The need for increased access to primary care physicians is well recognized as indicated by the Healthy People 2020 goals to proportionately increase the number of persons with a primary care provider and ongoing source of care (DHHS ODPHP, 2015).

Regardless of the actual number of physicians needed in the future, there are currently primary care physician shortages across the country in both rural and urban areas. As of June 2014, the Health Resources and Services Administration identified almost 6,100 Primary Care Health Provider Shortage Areas (DHHS HRSA, 2015). Because of these shortage areas, many studies have attempted to predict the future practice locations of Primary Care Physicians. One study of a Family Medicine Residency Program found a significant positive association between completing residency in a community health center and future practice in a shortage area as compared to completing residency in either an urban or rural location (Ferguson, Cashman, Savageau, & Lasser, 2009).

### *Evaluation*

As directed by McKenzie, Neiger and Smeltzer (2005), this evaluation will have a specific approach and framework. A goal-oriented approach will be used. This evaluation will focus on the processes executed during the planning and implementation phases for the purpose of achieving the goals and objectives of the family medicine residency program at the Saint Louise Clinic. The goal-oriented evaluation approach, also known as the objectives-oriented or objectives-based approach, was developed by Ralph W. Tyler in 1949. The premise of Tyler's objectives-based approach is to evaluate the relationship between program goals and objectives and student learning outcomes. Tyler developed this evaluation approach while he was Director of Evaluation for the Progressive Education Association's longitudinal study of high school programs which became known as the Eight Year Study. One outcome of the innovative evaluation of



Eight Year Study included changes in future educational evaluation practices and measurement of student outcomes. The Sage Research Methods Encyclopedia of Evaluation summarizes Tyler's four objectives-based evaluation components: define the program's learning objectives, identify learning experiences, maximum effect of the experiences, and curriculum evaluation. These principal components were initially described in 1949 by Tyler in *Basic Principles of Curriculum Instruction* (Christie & Alkin, 2005).

In current evaluations, objects-based evaluation is more broadly described as an evaluation approach aimed at understanding program goals and objectives and the extent to which the goals and objectives are achieved. This approach is widely used in health promotion program evaluation (McKenzie et al., 2005). Tyler's objectives-based evaluation originated in educational evaluation. The objectives-based approach is naturally suited for this evaluation because The Saint Louise Family Medicine Residency Program is a graduate medical education program.

The Centers for Disease Control and Prevention (CDC) Framework for Program Evaluation in Public Health will be followed to conduct the evaluation. The CDC's framework was developed in 1999 to provide guidance for program evaluations in public health. The CDC's framework prioritizes involvement of stakeholders in evaluations conducted throughout the life of the program resulting in evaluation conclusions that are useful to the stakeholders or other similar programs (CDC, 1999). The CDC's framework consist of six steps and 30 utility standards grouped into four categories (see Appendix A for a diagram of the framework). The six steps in the CDC's framework are

engaging stakeholders, describing the program, focusing the evaluation design, gathering credible evidence, justifying conclusions, and ensuring use and lessons learned.

The four categories of standards are utility, feasibility, propriety and accuracy. The standards are designed to ensure the evaluation results in a fair and accurate assessment of the program. The purpose of the seven standards in the utility category is to ensure that the evaluation meets the needs of the stakeholders. The three standards in the feasibility category guarantee that the evaluation is completed using non-interruptive, rational methods with sensible use of resources. The Political Viability standard in the Feasibility category ensures that the views and interest of different groups of stakeholders should be considered. The eight standards in the Propriety category are meant to ensure that the evaluation is conducted in an ethical, unbiased manner. The Accuracy category has 12 standards and these standards guarantee that the evaluation results are truthful. The CDC based the standards in their framework from standards from the Joint Committee on Standards for Educational Evaluation (CDC, 1999). The Joint Committee on Standards for Educational Evaluation (The Joint Committee) is an association of organizational stakeholders with interest in quality evaluation including the National Education Association, American Psychological Association, the Evaluation Center at Western Michigan University and the American Evaluation Association (The Joint Committee, 2015). The CDC's framework has been used in evaluations for various programs including Affordable Homeownership Programs, Child Lead Poisoning Prevention Programs, the CDC's Well-Integrated Screening and Evaluation of Women Across the Nation Program, and Physician Education programs for vaccinations (CDC, 1999; Finkelstein, Wittenborn, and Farris, 2004).

The accuracy and usefulness of an evaluation should be evaluated. Michael Scriven first used the term metaevaluation to describe an evaluation to assess the accuracy and completeness of an evaluation (Stufflebeam, 2001). A metaevaluation assesses an evaluation's compliance with the evaluation standards. Metaevaluations are important because action may be taken based on an outcome of an evaluation; therefore, evaluation results must be accurate, comprehensive and fair (Stufflebeam, 2001).

### CHAPTER III: METHODS

This evaluation of the Saint Louise Family Medicine Residency Program will be conducted according to the Centers for Disease Control's Framework for Program Evaluation with a goal-oriented approach. An evaluation plan will guide the evaluation (see Appendix B for the plan template). The evaluation plan is the core document that explains how the evaluation is designed, conducted, and the usefulness of the results. (Lavinghouze & Snyder, 2013). The Saint Louise Family Medicine Residency Program evaluation plan was created using the CDC's Office on Smoking and Health (OSH) and Division of Nutrition, Physical Activity, and Obesity (DNPAO)'s "Developing and Effective Evaluation Plan" workbook and the CDC's "Introduction of Program Evaluation for Public Health Programs: A Self-Study Guide" as guides (CDC 2011; CDC 2012).

In the evaluation plan, each of the six steps of the evaluation framework are represented with a guide for completion of each step. The steps do not have to be completed in a linear order. In some cases, steps could be completed concurrently or steps may be revisited during the evaluation (CDC, 2011). The most important, applicable standards associated with each of the six steps are included in the evaluation plan. This evaluation will use qualitative methods including review of program documents, operating procedures, and timelines. According to Cooke (1997), qualitative evaluation methods are appropriate for program evaluations to explain the environment in which the program operates, implementation, activities, unintended consequences, application of evaluation results. The evaluation will focus processes undertaken to open the Saint Louise Family Medicine Residency program and the processes in place to

achieve the program's goals and objectives. Common challenges in graduate medical education including cost and quality will be considered as well as topics important to the stakeholders.

The first step of the CDC's framework is "Engage the Stakeholders."

Stakeholders targeted for this evaluation include executives at Saint Thomas Health Systems including the Saint Louise Clinic, University of Tennessee Health Sciences Center, and the Saint Thomas Rutherford Foundation. The Saint Thomas Rutherford Foundation will be targeted for the stakeholder interview because this foundation holds fundraisers to raise money for the Saint Louise Clinic. The primary purpose of the stakeholder interviews is to identify the Saint Louise Clinic's activities and outcomes that are the most important to each stakeholder. A semi-structured interview guide will be used to guide the stakeholder interviews (see Appendix C for the interview guide template).

As part of the second step "Describe the Program" a logic model will be developed. The logic model development will be guided by the W.K. Kellogg Foundation's Evaluation Handbook (W.K. Kellogg, 2010). Also included in the second step is a narrative description of the program including the goals and objectives, statement of need, stage of development and program context.

The third step in the framework is "Focus the Evaluation Design." The evaluation questions are identified in this step. The primary evaluation questions are "What processes are in place to achieve the Saint Louise Family Medicine Residency Program's mission to develop skilled, qualified, and compassionate Family Medicine physicians?" and "Was the Saint Louise Clinic compliant with target milestones, timelines, and

deliverables?”. Secondary evaluation questions may be added based on the outcome of the stakeholder interviews.

“Data Review and Collection” is the fourth step in the framework. This step involves review of documents including timelines, metrics, milestones and budgets. The Accreditation Council for Graduate Medical Education’s Program Information Form will be reviewed as will all other documents made available by the Program Director.

In the fifth step, “Justify Conclusions”, the extent to which the program was successful in achieving the goals identified in the evaluation questions will be assessed. Other areas important to stakeholders will also be assessed. Successes and areas to be improved will be identified. The sixth step is “Ensure Use and Share Lessons Learned.” The final report will include the successes and areas for improvement identified in the “Justify Conclusions” step. The timeline for the final report to be issued is within four weeks from the completion of the evaluation. Within approximately six weeks from the completion of the evaluation at a time convenient for the attendees, a presentation will be scheduled to discuss the evaluation and evaluation findings. The stakeholders, Program Director and other attendees deemed appropriate by the Program Director will be invited to the final evaluation presentation.

The participants in the Saint Louise Family Medicine Residency program are the Family Medicine Residents. The first class of residents began their training at the clinic on July 1, 2015. Because the residents have completed less than one-third of their three year program, evaluation of the outcome related to the residents is out of scope for this evaluation.

A metaevaluation will be performed for this evaluation. According to Stufflebeam (2001) when no alternative exist, the evaluator can also perform the formative metaevaluation. Lynch et al. (2003) performed a descriptive metaevaluation of an evaluation of an interdisciplinary graduate curriculum for students in a variety of health fields such as medicine, pharmacy, health education, and nursing. In the metaevaluation, each of the 30 evaluation standards were reviewed to assess the extent to which the standard was followed. For this evaluation of the Saint Louise Family Medicine Residency Program, each of the 30 evaluation standards will be assessed by the evaluator at the conclusion of the evaluation. The metaevaluation and list of evaluation standards are included in the evaluation plan. The metaevaluation findings are included in the evaluation plan and will be documented in the final evaluation report.

Upon completion of the evaluation, a final evaluation report including the results of the metaevaluation will be produced. The report will be circulated to the stakeholders. A presentation of the evaluation findings will be held for the stakeholders and other interested parties including the Family Medicine residents. The results of the evaluation will be disseminated to allow other similar residency programs to learn from the results of this evaluation. A better understanding of the challenges of opening a residency program will result from synthesis of evaluation results from many programs (Cooke, 1997).

## CHAPTER IV: RESULTS

The evaluation plan developed prior to the start of the evaluation was followed throughout the evaluation (see Appendix B for the plan template). During the first step of the CDC's framework, "Engage the Stakeholders", the stakeholders interviewed during this evaluation were the program director (male, age 46), the core faculty member responsible for scholarly activity (female, age 57) the Saint Thomas VP of Graduate Medical Education and Research (female, age 38), an assistant faculty member (male, age 65) and the Saint Thomas Rutherford Foundation Director (female, age 58). The stakeholders were involved during the planning and implementation phases of the program. The assistant faculty member included in the stakeholder interview process was responsible for hiring the program director. The primary purpose of the stakeholder interviews was to identify the activities and outcomes that are the most important to each stakeholder. A semi-structured interview guide was used to guide the stakeholder interviews (see Appendix C for the interview guide). Table 1 below list the program outcome that is most important to each stakeholder.



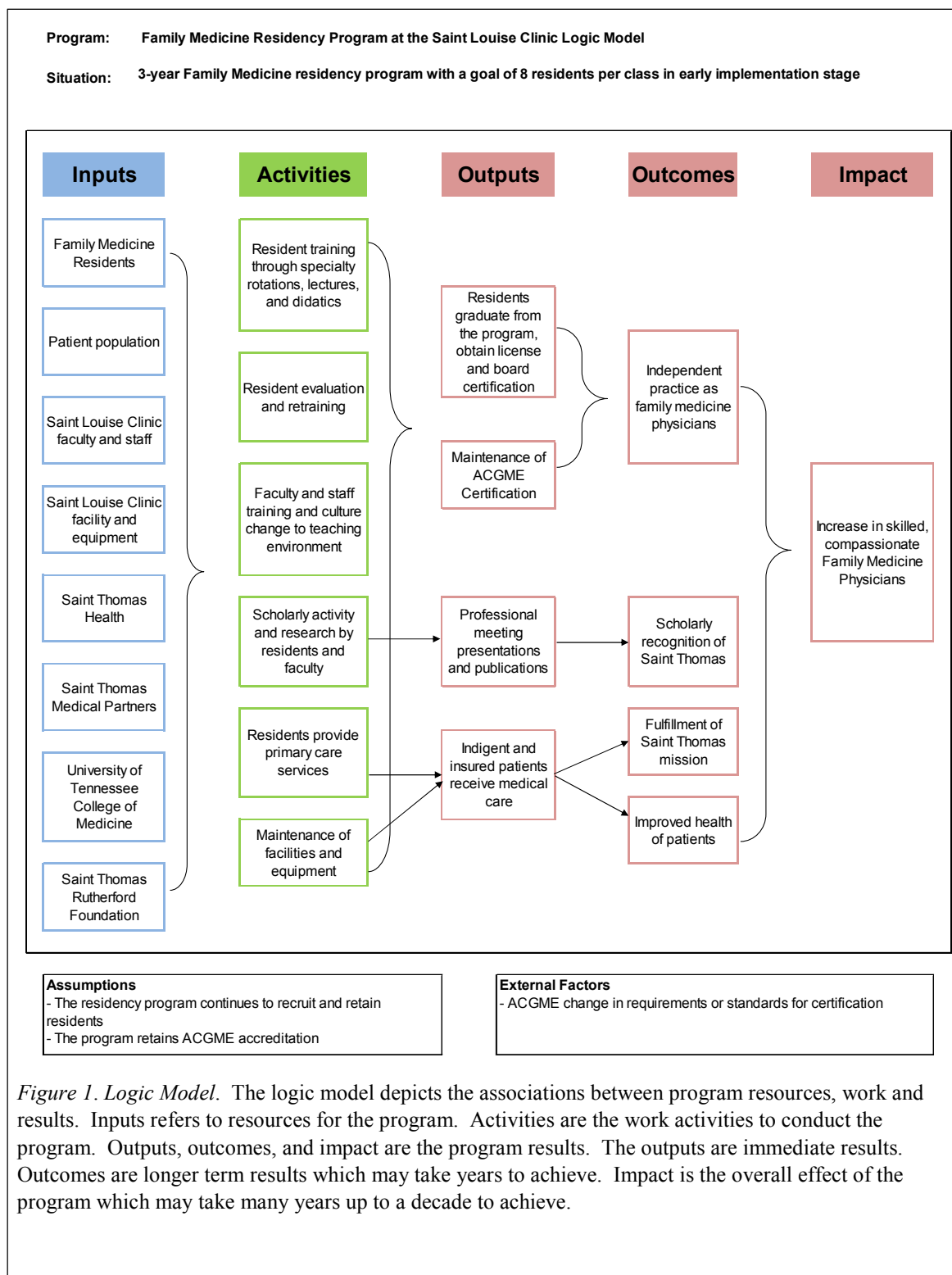
**Table 1. Stakeholder Interview Outcomes**

Stakeholder	What activities and/or outcomes of this program matter the most?
PD	- Development of residents into physicians with a passion for their profession and to serve others
FD	- Graduating residents remain in Murfreesboro to practice Family Medicine
CF	- Increasing research and scholarly activity
VP	- Culture change to embrace the residency program as a teaching environment, including transitioning physicians into faculty
AF	. Primary responsibility was to hire the program director

Note. PD = Program Director, VP = Saint Thomas Vice President Medical Education and Research, FD = Saint Thomas Rutherford Foundation Director, CR = Core Faculty Member responsible for scholarly activity, AF = Assistant Faculty member

A common theme discussed by all stakeholders was the family medicine residency program's role in fulfilling the mission of Saint Thomas Health to serve all persons including the poor and vulnerable (Saint Thomas Health, 2016). The stakeholder interviews made it apparent that the program director was involved in all aspects of the planning and implementation phases. The program director's work resulted in the program gaining ACGME accreditation and opening on schedule.

As part of the second "Describe the Program" step, a narrative description of the program including the mission, statement of need, stage of development and program context was described. The logic model (Figure 1) was developed during the second step of the evaluation. The logic model depicts the associations between inputs, activities, and results in the three categories of outputs, outcomes and impact. Information collected from the stakeholder interviews was used to create the logic model.



The third step in the framework is “Focus the Evaluation Design.” The secondary evaluation questions were identified in this step based on the outcome of the stakeholder interviews. Table 1 list the secondary evaluation questions and the stakeholder(s) who identified the question.

**Table 2: Secondary Evaluation Questions**

<b>Evaluation Question</b>	<b>Stakeholder</b>
1. Was Accreditation Council of Graduate Medical Education (ACGME) accreditation obtained according to planned timelines?	<b>PD, VP, FD, CF, AF</b>
2. Were six full-time faculty members hired and retained?	<b>PD, VP</b>
3. Were adequate facilities including equipment for residents secured according to planned timelines	<b>PD, VP</b>
4. Was the appropriate patient population in place prior to July 2015 when the first class of residents began work?	<b>PD, FD</b>
5. Was the first class of eight residents enrolled according to timelines?	<b>PD, VP, FD, CF, AF</b>
6. Was a system for resident evaluation in place prior to July 2015 and implemented appropriately?	<b>PD</b>
7. Was a system for faculty training in place prior to July 2015?	<b>PD</b>
8. Was a schedule for resident training including lectures/ didactics, grand rounds, or other methods in place prior to July 2015 and implemented appropriately?	<b>PD</b>
9. Was a schedule for resident clinical rotations in place prior to July 2015 and implemented appropriately?	<b>PD</b>
10. Were the ACGME requirements for scholarly activity met as of February 2016	<b>PD, CF</b>

Note. PD = Program Director, VP = Saint Thomas Vice President Medical Education and Research, FD = Saint Thomas Rutherford Foundation Director, CF = Core Faculty Member responsible for scholarly activity, AF = Assistant Faculty member

The stakeholders were consistent in their discussions of the important goals and objectives of the program. The program director and core faculty member were most knowledgeable of the challenges faced during the planning and implementation phases.

“Data Review and Collection” is the fourth step in the framework. This step involved review of documents to answer the evaluation questions. Documents included in the review were the Residency Review Committee for Family Medicine Program Information Form (PIF), Accreditation Information which was an updated, shortened version of the PIF completed for a second ACGME site visit, Patient Demographic Report for 2015 (the report included no information which would identify the patients), and resident rotation evaluation templates for the internal medicine, surgery, orthopedic and ophthalmology rotations. Documents obtained directly from the ACGME website including the Family Medicine Milestone Project and ACGME Program Requirements for Graduate Medical Education were reviewed to confirm the requirements of the accreditation agency. Additionally, the core faculty member provided an email on April 14, 2016 with details about faculty training. The program director provided an email on June 3, 2016 with details about the resident rotations. The documents reviewed and the two emails provided adequate information to assess the extent to which the evaluation questions were achieved.

In the fifth step, “Justify Conclusions”, the extent to which the program was successful in achieving the goals identified in the evaluation questions was assessed. Table 2 list the evaluation questions and outcomes divided into categories of success and areas identified for improvement.

**Table 3. Evaluation Question Assessment Results**

<b>Successes</b>	
<b>Evaluation Question</b>	<b>Outcome</b>
Primary 1: What processes are in place to achieve the Family Medicine Residency Program's mission to develop skilled, qualified, and compassionate Family Medicine physicians?	Data Source: PIF, Accreditation Information
	Results and Interpretation: A family medicine clinic with a diverse patient population, adequate facilities and equipment, and an environment with supportive faculty to facilitate learning is required to fulfil the mission of the Saint Louise Clinic Family Medicine Residency Program. The necessities are in place to achieve this mission. The first class of residents will graduate in 2018.
	Next Steps: The mission of the program is clear to the program administrators. Communicating the program's mission along with the mission of Saint Thomas to the broader community would help with promotion of the program.
Primary 2: Were goals, target milestones, timelines, and deliverables during the planning and implementation phases of the residency program achieved?	Data Source: PIF, Accreditation Information
	Results and Interpretation: Overall the goals were met during the planning and implementation phases. Many challenges were overcome during these phases. Specific goals are listed as secondary evaluation questions.
	Next Steps: No specific next steps were identified for this evaluation question.
Secondary 1: Was ACGME accreditation obtained according to planned timelines?	Data Source: Accreditation Information
	Results and Interpretation: Yes, ACGME accreditation was received on July 1, 2013 following the initial site visit by ACGME.
	Next Steps: The program must continue to maintain accreditation. A second site visit by ACGME occurred in January 2016. Findings from the ACGME visit should be addressed promptly.

**Table 3 (cont.).**

<p>Secondary 3: Were adequate facilities including equipment for residents secured according to planned timelines?</p>	<p>Data Source: PIF</p> <hr/> <p>Results and Interpretation: Facilities for the residents and patients were secured within timelines. The Saint Louise Clinic moved to a larger location to accommodate the additional patients needed for the residency program. The facility requirements by ACGME were met. Additional equipment including an x-ray room and ultrasound machine have been added to the Saint Louise Clinic Facility since start of the residency program.</p> <hr/> <p>Next Steps: Funds raised by the Ambassadors program from the Saint Thomas Rutherford Foundation are given directly to the family medicine residency program. Continued use of these funds to support the residents and purchase new equipment will enhance the resident's learning environment and quality of care for patients.</p>
<p>Secondary 5: Was the first class of eight residents enrolled according to timelines?</p>	<p>Data Source: Accreditation Information</p> <hr/> <p>Results and Interpretation: Yes, eight residents were recruited as planned for the inaugural class.</p> <hr/> <p>Next Steps: During the evaluation, the second class of residents was filled. The second class of residents will begin work in July 2016.</p>
<p>Secondary 6: Was a system for resident evaluation in place prior to July 2015 and implemented appropriately?</p>	<p>Data Source: PIF, Milestones, Resident evaluation templates</p> <hr/> <p>Results and Interpretation: ACGME adopted a milestone reporting structure for evaluation of residents in September 2013. The milestones are grouped into categories: patient care, medical knowledge, systems-based practice, practice-based learning and improvement, professionalism, and communication. Individual residency programs have leniency to implement a process using the milestones to evaluate their residents. The resident performance evaluation process is a success of this program. The program administrators incorporated the ACGME Milestones into the resident evaluations that occur after completion of a rotation in a specialty area. Residents</p>

**Table 3 (cont.).**

	<p>are evaluated after each rotation. Incorporating the milestones into an existing evaluation time point reduces the burden on the faculty and gives the residents one evaluation report encompassing the milestones and learning objectives specific to the specialty area.</p> <hr/> <p>Next Steps: This evaluation method could be disseminated to other programs at conferences or poster presentations.</p>
<p>Secondary 7: Was a system for faculty training in place prior to July 2015?</p>	<p>Data Source: PIF, Email from Core faculty on April 14, 2016</p> <hr/> <p>Results and Interpretation: Faculty attended a one day training workshop presented by University of Tennessee. The workshop included courses on giving feedback for residents. Faculty also attended a three day conference at Vanderbilt titled The Clinical Evaluation of Residents and Fellows. Training was provided on milestones, clinical competency evaluation, and feedback for residents. As documented in the Program Information Form, monthly faculty meetings are conducted. Core faculty attend 5 days of continuing medical education per year supported by the residency program. Residents evaluate faculty at the end of each rotation. The program director completes annual evaluations of the faculty.</p> <hr/> <p>Next Steps: No specific next steps were identified for this evaluation question. Faculty training and meetings should continue to ensure all faculty have up to date information and to foster a collaborative environment.</p>
<p>Secondary 8: Was a schedule for resident training including lectures/ didactics, grand rounds, or other methods in place prior to July 2015 and implemented appropriately?</p>	<p>Data Source: PIF</p> <hr/> <p>Results and Interpretation: Training includes morning reports, mid-day conferences, resident support groups, resident only meetings, faculty/resident meetings, small group meetings, office meetings, self-directed learning online modules, journal club including evaluation of journal articles, and workshops. Residents gain experience on management of health systems including patient cost, financial management of a medical practice, quality improvement, billing practices, staffing, and patient scheduling. The training schedule was implemented as planned. The schedule is tracked in the New Innovation</p>

**Table 3 (cont.).**

	<p>Systems and program administrators ensure the training required by ACGME is offered.</p> <hr/> <p>Next Steps: As the program continues, the training schedule can be repeated each year. The residents should have an opportunity to provide feedback on the lectures and online training.</p>
<p>Secondary 9: Was a schedule for resident clinical rotations in place prior to July 2015 and implemented appropriately?</p>	<p>Data Source: PIF, Email from program director on June 3, 2016</p> <hr/> <p>Results and Interpretation: The schedule for rotations was in place prior to July 2015. ACGME requires that Family Medicine residents gain medical knowledge in the following areas: adult medicine; inpatient care; care of neonates, infants, children and adolescents; maternity and gynecological care; surgical patient care; musculoskeletal and sports medicine, emergency care; human behavior and mental health; community medicine; care of skin; diagnostic imaging and nuclear medicine. In addition to treating out-patients at The Saint Louise Clinic, the residents must rotate through many specialties to gain knowledge in these areas. Specialties for resident rotations include internal medicine, pediatrics, obstetrics, gynecology, general surgery, orthopedics, emergency medicine, psychiatry, dermatology, and radiology.</p> <hr/> <p>Next Steps: Residents have the option of choosing electives. This can pose a challenge because a preceptor is needed for each elective. As the program continues, the electives should be tracked. After several years of tracking, it may be easier to predict the electives requested by the residents.</p>
<p>Secondary 10: Were the ACGME requirements for scholarly activity met as of February 2016?</p>	<p>Data Source: Accreditation Information, ACGME requirements</p> <hr/> <p>Results and Interpretations: ACGME requires residents to participate in two scholarly activity projects including one quality improvement process. Implementing a research program has been a challenge during the first year of the program. The residents participated in a quality improvement program by</p>



Table 3 (cont.).

	<p>implementing the iPass patient hand-off program and developing a mentoring plan for the next class of residents. ACGME has scholarly activity requirements for faculty. Some members of the faculty must participate in peer-reviewed funding, publications, presentations at professional meetings or participation in educational organizations. ACGME does not specify the proportion of faculty that must participate in scholarly activity and just uses the description of “some.”</p>
	<p>Next Steps: Once the three classes of residents are filled, additional time may need to be committed to research to ensure that all residents have an opportunity to fulfill this requirement. The results of a survey completed by 55% of the existing Family Medicine residency program in July 2009 showed the most influential factors for residents participating in research were scheduling dedicated time for scholarly activities, recognizing residents for scholarly accomplishments, holding a research event to give residents an opportunity to share research results, and having program administrators participate in research. Programs with at least six faculty publications every two years had 25% or more of their residents with at least one publication (Crawford &amp; Sheehasen, 2011). Since faculty influence the scholarly activity by the residents, focusing on increasing scholarly activity by the faculty may result in increased scholarly activity by the residents as well. Small faculty meetings to foster collaboration in research could be held. Residents could be paired with faculty members for research projects based on their research interest.</p>
<b>Areas for Improvement</b>	
<b>Evaluation Question</b>	<b>Outcome</b>
<p>Secondary 2: Were six full-time faculty members hired and retained?</p>	<p>Data Source: PIF, Accreditation Information</p> <hr/> <p>Results and Interpretations: Retaining six core faculty members was a challenge. At the ACGME site visit in January 2016, the only core faculty member still with the program since July 2015 was Dr. Singer. The hiring and onboarding process for new faculty is lengthy and this poses a challenge. Onboarding is lengthy</p>

**Table 3 (cont.).**

	<p>due to requirements from insurance companies, Medicare, and TennCare and Saint Thomas Health processes.</p> <hr/> <p>Next Steps: Retaining high quality core faculty dedicated to teaching is critical to the program. The priority of the core faculty is education of the residents. The core faculty are primary contributors to the program mission to develop skilled, qualified, and compassionate family medicine physicians. The core faculty foster the teaching environment making the Saint Louise Clinic a positive learning environment for the residents. Incentives to recruit and retain core faculty should be considered.</p>
<p>Secondary 4: Was the appropriate patient population in place prior to July 2015 when the first class of residents began work?</p>	<p>Data Source: PIF, Accreditation Information, Patient Demographics</p> <hr/> <p>Results and Interpretations: Building a population of pediatric patients has been a challenge. Of the Saint Louise Clinic's current patients, 885 are age 18 or younger. Of the 885 patients, 376 are adolescents age 10 to 18, 308 are children age 1 to 9, and 201 are infants less than one year. ACGME requires each resident to have a minimum of 1650 patient encounters during their three years of residency. The 1650 patient encounters must include 165 encounters with patients younger than age 10. Additional patients younger than age 10 are needed to ensure each resident can achieve the 165 patient encounters.</p> <hr/> <p>Next Steps: An adequate and diverse patient population is needed to ensure the residents meet ACGME requirements for patient encounters. Increased time and focus is needed to increase the patient population to the proportions required by ACGME. The Saint Louise Clinic should be promoted by Saint Thomas Health physicians especially for patients without health insurance.</p>

Note. Residency Review Committee for Family Medicine Program Information Form = PIF, Patient Demographic Report for 2015 = Patient Demographics, Resident rotation evaluation templates for the internal medicine, surgery, orthopedic and ophthalmology rotations = Resident evaluation templates, Family Medicine Milestone Project = Milestones, ACGME Program Requirements for Graduate Medical Education = ACGME requirements

The sixth step is “Ensure Use and Share Lessons Learned.” The final report for the program director includes a listing of the successes and areas for improvement identified in the “Justify Conclusions” step (CDC, 1999).

The results of the meta-evaluation are shown below in Table 3. In the meta-evaluation, each of the 30 evaluation standards were reviewed to assess the extent to which the standard was followed. For this evaluation, each of the 30 evaluation standards were assessed by the evaluator at the conclusion of the evaluation.

**Table 4. Metaevaluation**

Category	Standard	Outcome
Utility	Stakeholder Identification	The five stakeholder interviews were conducted. All stakeholders were involved in the planning and implementation processes.
Utility	Evaluator Credibility	This evaluation was completed as part of a thesis project.
Utility	Information Scope & Selection	Evaluation questions were developed following the stakeholder interviews. This is a large program. The evaluation questions most important to stakeholders were the focus of the evaluation.
Utility	Values Identification	Values of the program were made clear during the stakeholder interviews. The stakeholders were consistent in their description of the mission.
Utility	Report Clarity	The final report written by the evaluator will be written as clearly as possible and will include information important to the end users.
Utility	Report Timeliness & Dissemination	The report will be delivered within 4 weeks from completion of the evaluation as planned.
Utility	Evaluation Impact	Evaluation questions important to the stakeholders were identified to ensure the evaluation is useful.
Feasibility	Practical Procedures	The evaluation was conducted with limited disruption to the program.
Feasibility	Political Viability	The culture and politics within Saint Thomas Health were considered during the evaluation.
Feasibility	Cost-effectiveness	Not applicable
Propriety	Service Orientation	The intended users of the evaluation were considered and evaluation questions created based on stakeholder interviews.

**Table 4 (cont.).**

Propriety	Formal Agreements	Not applicable
Propriety	Rights of Human Subjects	Informed Consent was obtained prior to each stakeholder interview.
Propriety	Human Interactions	All interactions were professional. The purpose of the evaluation was relayed and stakeholders signed informed consent forms.
Propriety	Complete & Fair Assessment	The evaluator was impartial with a goal of a complete and fair evaluation.
Propriety	Conflict of Interest	The evaluator is not associated with Saint Thomas Health or University of Tennessee College of Medicine
Propriety	Fiscal Responsibility	Not applicable
Accuracy	Program Documentation	Program documents were reviewed and documented on the primary source listing form. The evaluator did not have access to the program's computer systems.
Accuracy	Context Analysis	The program context was considered during the logic model creation.
Accuracy	Described Purpose & Procedures	The purpose of the evaluation was identified at the start of the evaluation. The evaluation framework was followed throughout the evaluation.
Accuracy	Defensible Information Sources	All information reviewed was provided directly from the residency program administrators or obtained during the stakeholder interviews.
Accuracy	Valid Information	All information reviewed was directly from the residency program and stakeholder interviews.
Accuracy	Reliable Information	Information reviewed was provided by administrators of the program and is reliable.
Accuracy	Systematic Information	Documents important during the planning and implementation phases were reviewed. Documents that sufficiently answered the evaluation question were reviewed.
Accuracy	Analysis of Quantitative Information	Not applicable
Accuracy	Analysis of Qualitative Information	As per the evaluation plan, this evaluation used qualitative methods to describe the program.
Accuracy	Justified Conclusions	Conclusions were justified based on documents reviewed and information from stakeholders.

**Table 4 (cont.).**

Accuracy	Impartial Reporting	The evaluator was impartial with a goal of a complete and fair evaluation reflected in the report.
Accuracy	Metaevaluation	Evaluation standards were assessed as planned.

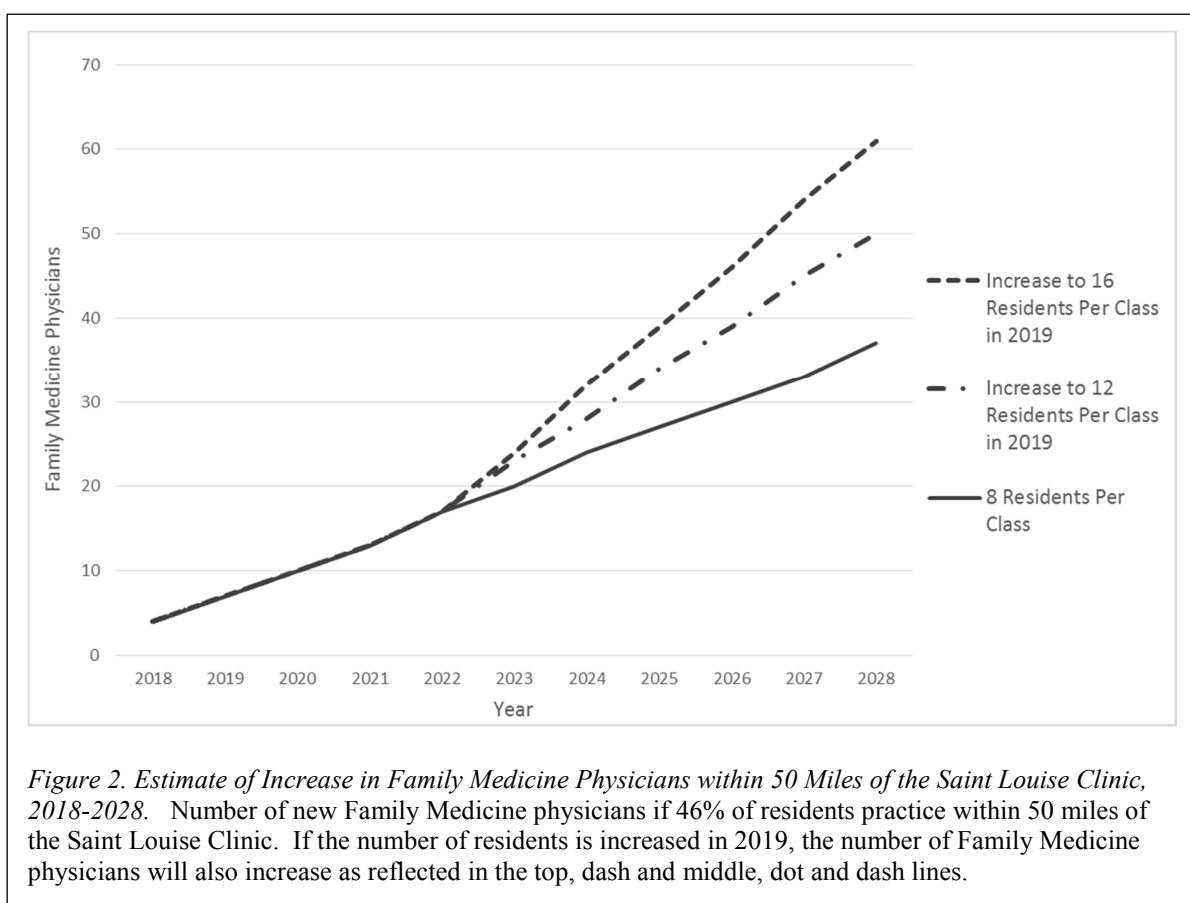
## CHAPTER V: DISCUSSION

This evaluation achieved the goal of assessing the primary evaluation questions and identifying secondary evaluation questions following the stakeholder interviews. Each step of the CDC's evaluation framework was completed and the metaevaluation of the standards was performed. The stakeholder interviews were critical in identifying secondary evaluation questions. Each of the five stakeholders interviewed described the family medicine residency program's role in the mission of Saint Thomas Health to serve all persons including the poor and vulnerable (Saint Thomas Health, 2016). Nearly 50% of the patients seen by the family medicine residents at the primary location are uninsured.

The logic model was a critical step in understanding the program especially in identifying the program results. The residency program was found to have beneficial outcomes in addition to the achieving the mission of the residency program to produce skilled, compassionate family medicine physicians. Other beneficial outcomes of the program identified during development of the logic model include scholarly recognition of Saint Thomas Health, fulfillment of the Saint Thomas mission and improved health of the patients at the Saint Louise clinic.

One consideration during the planning phase of the program was the status of primary care in Rutherford County. The Health Resources and Services Administration (HRSA) defines a primary care physician shortage area as less than 1 physician for every 3,500 residents (DHHS HRSA, 2015). According to the Robert Wood Johnson Foundation County Health Rankings, Rutherford County has 1 physician for every 2,231 residents (Robert Wood Johnson Foundation, 2016). Considering the rapid population

growth of Rutherford County and surrounding areas and the age of the currently practicing primary care physicians, a primary care physician shortage is a concern for this county. A study by the Robert Graham Center found that 46% of family medicine residents practice within 50 miles of their residency program (Fagan et al., 2015). Figure 2 shows the number of family medicine physicians Rutherford County and surrounding area would gain if 46% of residents from this family medicine residency program practice within 50 miles of the Saint Louise Clinic.



This family medicine residency program and the Saint Louise Clinic are beneficial programs to the Saint Thomas Health system because the residents care for a medically underserved population. The Saint Louise Clinic should be promoted in

communications related to the Saint Thomas Health mission. Additionally the program may result in an increase in family medicine physicians in Rutherford County and surrounding counties. The planning and implementation phases of the family medicine residency program are successful as the program continues to maintain ACGME accreditation, increase the patient population at the Saint Louise Clinic, and has recruited a full second class of family medicine residents.



## REFERENCES

- Accreditation Council for Graduate Medical Education. (2015). *About ACGME*. Retrieved from <http://www.acgme.org/acgmeweb/tabid/116/About.aspx>
- Accreditation Council for Graduate Medical Education. (2015). *ACGME program requirements for graduate medical education in family medicine*. Retrieved from [http://www.acgme.org/acgmeweb/Portals/0/PFAssets/ProgramRequirements/120\\_family\\_medicine\\_07012015.pdf](http://www.acgme.org/acgmeweb/Portals/0/PFAssets/ProgramRequirements/120_family_medicine_07012015.pdf)
- Accreditation Council for Graduate Medical Education. (2014). *Resident duty hours in the learning and working environment: comparison of the 2003 and 2011 standards*. Retrieved from <http://www.acgme.org/acgmeweb/Portals/0/PDFs/dh-ComparisonTable2003v2011.pdf>
- American Academy of Family Physicians. (2015). *Family medicine specialty*. Retrieved from <http://www.aafp.org/about/the-aafp/family-medicine-specialty.html>
- Bliss, M. (1999). William Osler at 150. *Canadian Medical Association Journal*, 161(7), 831-834. Retrieved from <http://www.cmaj.ca/content/161/7/831.full.pdf+html>
- Boes, C. J., Long, T. R., Rose, S. H., & Fye, W. B. (2015). The Founding of the Mayo School of Graduate Medical Education. *Mayo Clinic Proceedings*, 90(2), 252–263. doi.10.1016/j.mayocp.2014.12.008
- Centers for Disease Control and Prevention (CDC). (1999). *Framework for program evaluation in public health* (MMWR 48 No. RR-11). Retrieved from <http://www.cdc.gov/eval/framework/index.htm>

- Centers for Disease Control and Prevention (CDC). National Center for Chronic Disease Prevention and Health Promotion (U.S.). Division of Nutrition, Physical Activity, and Obesity; National Center for Chronic Disease Prevention and Health Promotion (U.S.). Office on Smoking and Health. (2011). *Developing an effective evaluation plan: setting the course for effective program evaluation*. Retrieved from <http://stacks.cdc.gov/view/cdc/24531>
- Centers for Disease Control and Prevention (CDC). Program Performance and Evaluation Office (2012). *Introduction to program evaluation for public health programs: a self-study guide*. Retrieved from <http://www.cdc.gov/eval/guide/introduction/index.htm>
- Centers for Medicare and Medicaid. (2014). *Direct graduate medical education (DGME)*. Retrieved from <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/DGME.html>
- Centers for Medicare and Medicaid. (2014). *Indirect medical education (IME)*. Retrieved from <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Indirect-Medical-Education-IME.html>
- Christie, C., & Alkin, M. (2005). Objectives-based evaluation. In S. Mathison (Ed.), *Encyclopedia of evaluation*. (pp. 282-286). Thousand Oaks, CA: Sage Publications, Inc. doi.10.4135/9781412950558.n378
- Cooke, T.D. (1997). Lessons learned in evaluation over the past 25 years. In E. Chelimsky & W. Shadish (Eds.), *Evaluation for the 21<sup>st</sup> century* (pp. 30-52). Thousand Oaks, CA: Sage Publications, Inc.

- Crawford, P., & Seehusen, D. (2011). Scholarly activity in family medicine residency programs: a national survey. *Family Medicine, 43*(5), 311-317. Retrieved from <http://www.stfm.org/NewsJournals>
- Department of Health and Human Services (DHHS) Health Resources and Service Administration (HRSA). (2015). *Shortage Areas*. Retrieved from <http://datawarehouse.hrsa.gov/topics/shortageAreas.aspx> or <http://www.hrsa.gov/shortage/index.html>
- Department of Health and Human Services (DHHS) Office of Disease Prevention and Health Promotion (ODPHP). (2015). *Healthy People 2020*. Retrieved from <http://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services>
- Fagan, E. B., Gibbons, C., Finnegan, S. C., Petterson, S., Peterson, L. E., Phillips Jr, R. L., & Bazemore, A. W. (2015). Family medicine graduate proximity to their site of training: policy options for improving the distribution of primary care access. *Family Medicine, 47*(2), 124-130. Retrieved from <http://www.stfm.org/NewsJournals>
- Ferguson, W. J., Cashman, S. B., Savageau, J. A., & Lasser, D. H. (2009). Family medicine residency characteristics associated with practice in a health professions shortage area. *Family Medicine, 41*(6), 405-410. Retrieved from <http://www.stfm.org/NewsJournals>
- Finkelstein, E., Wittenborn, J., & Farris, R. (2004). Evaluation of public health demonstration programs: the effectiveness and cost-effectiveness of

WISEWOMAN. *Journal of Women's Health*, 13(5), 625-633.

doi:10.1089/1540999041281043

Flexner, A. (2002). Extracted from: the Carnegie Foundation for the Advancement of Teaching, Bulletin Number four 1910. medical education in the United States and Canada; a report to the Carnegie Foundation for the advancement of teaching. *Bulletin of the World Health Organization*, 80(7). Retrieved from [http://apps.who.int/iris/bitstream/10665/71534/1/bulletin\\_2002\\_80%287%29\\_594-602.pdf](http://apps.who.int/iris/bitstream/10665/71534/1/bulletin_2002_80%287%29_594-602.pdf)

Institute of Medicine of the National Academies (IOM). (2014). *Graduate medical education that meets the nation's health needs*. Retrieved from <http://www.iom.edu/reports/2014/graduate-medical-education-that-meets-the-nations-health-needs.aspx>

Institute of Medicine of the National Academies (IOM). (1999). *To err is human: building a safer health system*. Retrieved from [http://iom.nationalacademies.org/Reports/1999/To-Err-is-Human-Building-A-Safer-Health-System.aspx?\\_ga=1.62613356.156167712.1436787110](http://iom.nationalacademies.org/Reports/1999/To-Err-is-Human-Building-A-Safer-Health-System.aspx?_ga=1.62613356.156167712.1436787110)

Irby, D. M., Cooke, M., & O'Brien, B. C. (2010). Calls for reform of medical education by the Carnegie Foundation for the advancement of teaching: 1910 and 2010. *Academic Medicine -Philadelphia-*, 85(2), 220-227. Retrieved from <http://journals.lww.com/academicmedicine/toc/2010/02000>

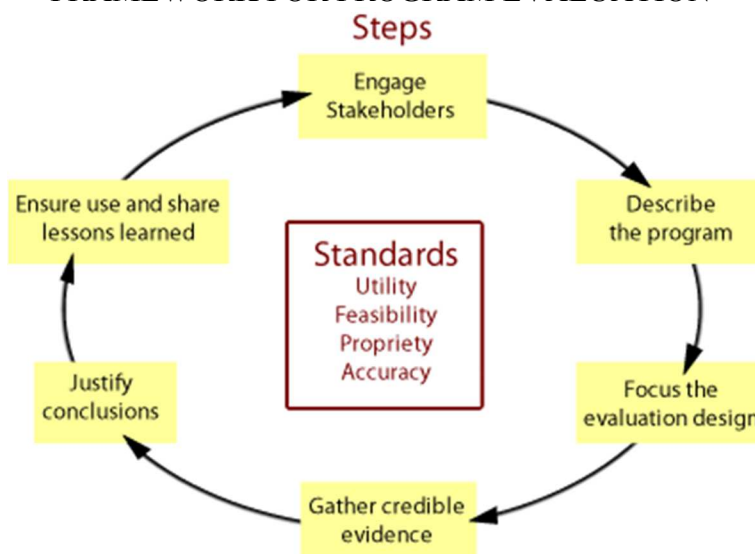
Jagsi R., Kitch B.T., Weinstein D.F., Campbell E.G., Hutter M., & Weissman J.S. (2005). Residents report on adverse events and their causes. *Archives of Internal Medicine*, 165(22), 2607–2613. doi.10.1001/archinte.165.22.2607

- Lavinghouze, S. R., & Snyder, K. (2013). Developing your evaluation plans: a critical component of public health program infrastructure. *American Journal of Health Education, 44*(4), 237-243. doi:10.1080/19325037.2013.798216
- Lynch, D. C., Greer, A. G., Larson, L. C., Cummings, D. M., Harriett, B. S., Dreyfus, K. S., & Clay, M. C. (2003). Descriptive metaevaluation case study of an interdisciplinary curriculum. *Evaluation & the Health Professions, 26*(4), 447–461. doi.org/10.1177/0163278703258099
- McKenzie, J. F., Neiger, B. L., & Smeltzer, J. L. (2005). *Planning, implementing, and evaluating health promotion programs: a primer*. San Francisco: Pearson/Benjamin Cummings.
- Mullan, F., Chen, C., & Steinmetz, E. (2013). The geography of graduate medical education: imbalances signal need for new distribution policies. *Health Affairs, 32*(11), 1914–1921. doi.10.1377/hlthaff.2013.0545
- National Medicine Resident Matching Program. (2015). *Results and data: 2015 main residency match*. Retrieved from [http://www.nrmp.org/wp-content/uploads/2015/05/Main-Match-Results-and-Data-2015\\_final.pdf](http://www.nrmp.org/wp-content/uploads/2015/05/Main-Match-Results-and-Data-2015_final.pdf)
- Petterson, S. M., Liaw, W. R., Phillips, R. L., Rabin, D. L., Meyers, D. S., & Bazemore, A. W. (2012). Projecting US primary care physician workforce needs: 2010-2025. *The Annals of Family Medicine, 10*(6), 503–509. doi.10.1370/afm.1431
- Phillips, D. P., & Barker, G. E. C. (2010). A July spike in fatal medication errors: a possible effect of new medical residents. *Journal of General Internal Medicine, 25*(8), 774–779. doi.10.1007/s11606-010-1356-3

- Rich, E. C., Liebow, M., Srinivasan, M., Parish, D., Wolliscroft, J. O., Fein, O., & Blaser, R. (2002). Medicare financing of graduate medical education. *Journal of General Internal Medicine, 17*(4), 283–292.
- Saint Thomas Health. (2016). *About us: mission integration*. Retrieved from <http://www.sthealth.com/about-us/mission-integration>
- Starmer, A. J., Spector, N. D., Srivastava, R., West, D. C., Rosenbluth, G., Allen, A. D., & ... Landrigan, C. P. (2014). Special article: changes in medical errors after implementation of a handoff program. *The New England Journal of Medicine, 371*(19), 1803-1812. doi:10.1056/NEJMsa1405556
- Stufflebeam, D. L. (2001). The metaevaluation imperative. *American Journal of Evaluation, 22*, 183-209. doi:10.1016/S1098-2140(01)00127-8
- The Joint Committee on Standards for Educational Evaluation. (2015). *Members*. Retrieved from <http://www.jcsee.org/members>
- W. K. Kellogg Foundation. (2010). *Evaluation handbook*. Retrieved from <http://www.wkkf.org/resource-directory/resource/2010/w-k-kellogg-foundation-evaluation-handbook>

## APPENDICES

APPENDIX A: CENTERS FOR DISEASE CONTROL AND PREVENTION'S "A FRAMEWORK FOR PROGRAM EVALUATION"



**30 Standards:**

<b>UTILITY</b>	<b>FEASIBILITY</b>
<ul style="list-style-type: none"> <li>• Stakeholder Identification</li> <li>• Evaluator Credibility</li> <li>• Information Scope &amp; Selection</li> <li>• Values Identification</li> <li>• Report Clarity</li> <li>• Report Timeliness &amp; Dissemination</li> <li>• Evaluation Impact</li> </ul>	<ul style="list-style-type: none"> <li>• Practical Procedures</li> <li>• Political Viability</li> <li>• Cost-effectiveness</li> </ul>
<b>PROPRIETY</b>	<b>ACCURACY</b>
<ul style="list-style-type: none"> <li>• Service Orientation</li> <li>• Formal Agreements</li> <li>• Rights of Human Subjects</li> <li>• Human Interactions</li> <li>• Complete &amp; Fair Assessment</li> <li>• Conflict of Interest</li> <li>• Fiscal Responsibility</li> </ul>	<ul style="list-style-type: none"> <li>• Program Documentation</li> <li>• Context Analysis</li> <li>• Described Purpose &amp; Procedures</li> <li>• Defensible Information Sources</li> <li>• Valid Information</li> <li>• Reliable Information</li> <li>• Systematic Information</li> <li>• Analysis of Quantitative Information</li> <li>• Analysis of Qualitative Information</li> <li>• Justified Conclusions</li> <li>• Impartial Reporting</li> <li>• Metaevaluation</li> </ul>

Centers for Disease Control and Prevention. Framework for program evaluation in public health. MMWR 1999; 48(No. RR-11). Retrieved from <http://www.cdc.gov/eval/framework/index.htm>



## APPENDIX B: EVALUATION PLAN

### Part I Primary Evaluation Goals

- To identify processes in place to achieve the Saint Louise Family Medicine Residency Program’s mission to develop skilled, qualified and compassionate Family Medicine physicians.
- To evaluate compliance with target milestones, timelines, and deliverables.

### Part II Center for Disease Control’s “Framework for Program Evaluation Steps and Standards”

#### Step 1: Engage the Stakeholders

##### Part 1. Identify Key Stakeholders (stakeholders may be listed more than once):

1. Who was involved in the program planning and implementation (name and role)?
2. Who is involved in program operations (name and role)?
3. Who will use the evaluation results (name and role)?

##### Part 2. What Matters to the Stakeholders?

Stakeholder	What activities and/or outcomes of this program matter the most? During the planning and implementation phases, what goals, objectives, target milestones, timelines and deliverables were most important?

##### Part 3. Applicable Standards:

1. Utility – Stakeholder Identification
2. Utility – Evaluator Credibility
3. Propriety – Human Interactions
4. Propriety – Conflict of Interest
5. Accuracy - Metaevaluation

## Step 2: Describe the Program

### Part 1. Narrative Description

1. Statement of Need:
2. Stage of Development:
3. Context:

### Part 2: Data for Logic Model

Component		Summary
1.	Inputs (Resources)	
2.	Activities	
3.	Outputs	
4.	Outcomes	
5.	Impact	

### Part 3. Applicable Standards:

1. Accuracy – Program documentation
2. Accuracy – Context analysis
3. Accuracy - Metaevaluation

## Step 3: Focus the Evaluation Design

### Part 1. Evaluation Question(s):

Primary Evaluation Question		
1.		
2.		
	Stakeholder	Secondary Evaluation Question(s)
1.		
2.		
3.		

### Part 2. Applicable Standards:

1. Utility – Evaluation Impact
2. Feasibility – Practical procedures
3. Feasibility – Political viability
4. Propriety – Service orientation
5. Propriety – Complete and fair assessment
6. Accuracy – Described purpose and procedures
7. Accuracy – Metaevaluation

## Step 4: Gather Credible Evidence

### Part 1. Data review and collection

#### Primary Source Listing

Source	Version	Version Date	Author	Location	Other Attributes

#### Evaluation Questions, V. 1 dated 10-Oct-2015

Evaluation Question	Source	Metric/ Process/ Program Performance Indicator

### Part 2. Applicable Standards:

1. Utility – Information scope and selection
2. Accuracy – Defensible information sources
3. Accuracy – Valid information
4. Accuracy – Reliable information
5. Accuracy – Systematic information
6. Accuracy – Metaevaluation

## Step 5: Justify Conclusions

### Part 1. Successes and Areas for Improvement

Evaluation Question	Successes

Evaluation Question	Areas for Improvement

### Part 2. Applicable Standards:

1. Utility – Values identification
2. Accuracy – Analysis of qualitative information
3. Accuracy – Justified conclusions
4. Accuracy - Metaevaluation

## Step 6: Ensure Use and Share Lessons Learned

### Part 1. Distribution of Results

Results Distribution	Timeline
Final Evaluation Report	Within 4 weeks from completion of evaluation
Evaluation Presentation	Within 6 weeks from completion of evaluation

### Part 2. Applicable Standards:

1. Utility – Evaluator credibility
2. Utility – Report clarity
3. Utility – Report timeliness and dissemination
4. Utility – Evaluation impact
5. Propriety - Disclosure of findings
6. Accuracy – Impartial reporting
7. Accuracy – Metaevaluation

## Part III Metaevaluation

### Part 1 Evaluation of Standards

Category	Standard	Outcome
Utility	Stakeholder Identification	
Utility	Evaluator Credibility	
Utility	Information Scope & Selection	
Utility	Values Identification	
Utility	Report Clarity	
Utility	Report Timeliness & Dissemination	
Utility	Evaluation Impact	
Feasibility	Practical Procedures	
Feasibility	Political Viability	
Feasibility	Cost-effectiveness	
Propriety	Service Orientation	
Propriety	Formal Agreements	
Propriety	Rights of Human Subjects	
Propriety	Human Interactions	
Propriety	Complete & Fair Assessment	
Propriety	Conflict of Interest	
Propriety	Fiscal Responsibility	
Accuracy	Program Documentation	

Accuracy	Context Analysis	
Accuracy	Described Purpose & Procedures	
Accuracy	Defensible Information Sources	
Accuracy	Valid Information	
Accuracy	Reliable Information	
Accuracy	Systematic Information	
Accuracy	Analysis of Quantitative Information	
Accuracy	Analysis of Qualitative Information	
Accuracy	Justified Conclusions	
Accuracy	Impartial Reporting	
Accuracy	Metaevaluation	

## APPENDIX C: STAKEHOLDER INTERVIEW GUIDE

Date:	
Name:	
Role:	

<b>Question:</b> To what extent were you involved in the decision to open the Family Medicine Program at the Saint Louise Clinic?
<b>Answer:</b>

<b>Question:</b> To what extent have you been involved in the operation of the Family Medicine Program at the Saint Louise Clinic?
<b>Answer:</b>

<b>Question:</b> What activities and outcomes of the Family Medicine Residency Program are the most important to you?
<b>Answer:</b>

<b>Question:</b> What goals and objectives during the start-up and implementation of the Family Medicine Residency Program are most important to you?
<b>Answer:</b>

**Question:**

Do you feel that those goals and objectives that were most important to you were met?

**Answer:****Question:**

Do you have any other comments related to the start-up or implementation of the Family Medicine Residency Program?

**Answer:**

## APPENDIX D: IRB APPROVAL

**IRB**  
**INSTITUTIONAL REVIEW BOARD**  
 Office of Research Compliance,  
 010A Sam Ingram Building,  
 2269 Middle Tennessee Blvd  
 Murfreesboro, TN 37129

**EXEMPT APPROVAL NOTICE**

2/18/2016

Investigator(s): Sarah Murfree & Norman Weatherby  
 Department: Health & Human Performance  
 Investigator(s) Email: smurfree@mtmail.mtsu.edu  
 Protocol Title: "A Goal-Oriented Evaluation of the Family Medicine Residency Program at the Saint Louise Clinic."  
 Protocol ID: 16-1151

Dear Investigator(s),

The MTSU Institutional Review Board, or a representative of the IRB, has reviewed the research proposal identified above and this study has been designated to be EXEMPT.. The exemption is pursuant to 45 CFR 46.101(b) (2) **Educational Tests, Surveys, Interviews, or Observations**

The following changes to this protocol must be reported prior to implementation:

- Addition of new subject population or exclusion of currently approved demographics
- Addition/removal of investigators
- Addition of new procedures
- Other changes that may make this study to be no longer be considered exempt

The following changes do not have to be reported:

- Editorial/administrative revisions to the consent of other study documents
- Changes to the number of subjects from the original proposal

All research materials must be retained by the PI or the faculty advisor (if the PI is a student) for at least three (3) years after study completion. Subsequently, the researcher may destroy the data in a manner that maintains confidentiality and anonymity. IRB reserves the right to modify, change or cancel the terms of this letter without prior notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board  
 Middle Tennessee State University

NOTE: All necessary forms can be obtained from [www.mtsu.edu/irb](http://www.mtsu.edu/irb).