Developing a Nipple Stimulation Education Program Guide in the Graduate Medical Setting for Use in Cervical Ripening of Low-Risk Pregnancies

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Abstract
The goal of this study was to trial a training method to increase the knowledge base of family medicine residents regarding nipple stimulation. The education consisted of a lecture on nipple stimulation and a handout to be given to patients. Pre and post surveys were performed. The education method was effective in increasing the comfort level of residents with nipple stimulation and the likelihood that they would recommend it to appropriate patients.

Introduction
It is known that nipple stimulation is effective in improving Bishop scores of pregnant women with low risk pregnancies. It is important as higher Bishop scores are associated with greater rates of successful induction. Various studies have looked at different methods of increasing the Bishop score prior to admission to labor and delivery. In our clinic, current practices include sweeping of membranes and delay of non-medically indicated inductions until 41 weeks estimated gestational age. Other benefits of nipple stimulation include decreased incidence of postpartum hemorrhage and greater likelihood of spontaneous labor. It is unknown whether family medicine residents are comfortable recommending nipple stimulation to their patients and how frequently they do so. This investigation will attempt to answer these two questions as well as create an evidence-based training program to educate residents to increase the level of comfort and frequency of recommendation of nipple stimulation within our practice.

Methods
Population: Family Medicine residents at Truman Medical Lakewood facility.
Sample size: 27.
Inclusion/exclusion criteria: All family medicine residents were invited to participate but were able to opt out. Intervention took place in November of 2018 with follow up survey in February of 2019.

Intervention
Lecture regarding nipple stimulation was given to FM residents. Pre survey was administered. Lecture was followed by hand out of written content to be distributed to term, low risk patients and posted in resident areas. Post survey was collected at the end of three month period.

Study Question
Among family medicine residents in training, does having specific instruction regarding nipple stimulation and patient education handout, improve resident comfort and increase the frequency of recommendation for the use of nipple stimulation in low risk pregnancies?

Results
What methods do you recommend patients use to attempt to stimulate labor prior to admission to L&D?

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<th>Some</th>
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<td>12</td>
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How often do you discuss Nipple Stimulation with your pregnant patients?

<table>
<thead>
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Discussion
This project tested an education tool that could be used in several future studies. In order to test the external validity of this tool, this program could be implemented in other residencies that have a focus on training family medicine residents for obstetric care. A second area of interest would be tracking the Bishop scores of pregnant patients who were educated in the Family Medicine Clinic on nipple stimulation and following the labor outcomes and type of delivery in these patients. A third area of interest would be tracking postpartum hemorrhage rates pre and post implementation of the education tool.

Conclusions
Providing education regarding nipple stimulation was effective in increasing the confidence of family medicine residents. After implementation of the education lecture and patient handout, residents were 2.8 times more likely to recommend nipple stimulation to their patients as a method of cervical ripening. Over the course of the education period, 80% of residents felt they had learned something that would change their practice.

References
Error Rate in Electronic Medical Record Data in Employees of a Community Hospital

Background

Errors abound in the Electronic Medical Records we use daily and many of these are not benign. (Koppel, 2009) Lara Pullen, in an online Medscape article reporting from the American Academy of Ophthalmology’s 2014 Annual Meeting on an investigation that found less than half of the electronic medical records were complete and free from errors (Pullen, 2014). Healthcare does not have embedded systems of data entry validation and reconciliation—unlike banking, logistics, and other businesses. Recent legislation has encouraged and actually rewarded eligible providers to perform medication reconciliation with each face-to-face encounter, but has no reward mechanisms to underwrite the cost of reconciling diagnoses, problem lists, weights and measurements, clinical notes, and the hundreds of other components of the EMR that rely on human data entry. We are beginning to see the importance of accurate information in the medical records as we migrate from a volume to a value-based reimbursement system. In value-based systems, existing diagnoses and problem lists are being used to drive quality measures that have direct repercussions on healthcare reimbursement.

Patient engagement is a critical component of health and disease management. (Coulter, n.d.) A key component to improving patient engagement is access to the medical record through tools like the patient portals that are now required by CMS for providers and hospitals participating in Medicare and Medicaid EHR Incentive Programs. Dr. Prashitha Dullabh, showed that patients can be effectively engaged to provide accurate and reliable online feedback to improve their quality of EMRs. (Dullabh, n.d.) This raises the question: Can we engage the patients to undertake the arduous task of data verification and management of their own records?

This study is designed to engage the patients at TMC-Lakewood who are clinically trained (nurses, physicians, therapists, etc.) who already have access to the medical record to help reconcile, validate and update the medical record. It seeks to answer the question; can patient direct access and management of their own record improve the accuracy and reduce the cost of maintaining an accurate medical record?

Objective

To evaluate the type and magnitude of errors in medical charts of employees of a community hospital in order to show that direct patient management improved accuracy and decreases cost of managing an Electronic Health Record. This is a continuation of a prior study from 2018.

Study Design and Method

This project used a retrospective chart review model to address the specific research question.

Study Population: This study utilized chart data from employee-patients active on the patient portal system of a community hospital.

Methods and Procedure for Data Collection:
- Review each section of the chart from demographics through notes
- Categorize the errors

Anticipated Problems:
- Current policies discourage access of individuals to their own records
- HIPAA misinterpretations
- Defined EHR roles may prevent patients from performing certain
- Leadership resistance

Outcomes Data: Number and type of errors both in aggregate and by chart.

Results and Discussion

After increasing the study subject numbers from 25 in the initial study to 52 this year, errors of commission (incorrect information was entered) were less common than errors of omission (information not entered).

Active reconciliation of multiple sections of the chart with the study participant present was effective method for identifying errors in the medical record.

Every chart reviewed had errors of varying type and magnitude. The most common type of error overall was in the Problem List, but the most common severe errors were in Family History and Procedure History.

The most common sources of error were inaccurate problem lists, family histories, procedure history, and medication lists.

It is the responsibility of both the patient and providers to ensure accuracy in documentation.

Recommendations:

Dedicated time should be given yearly to active reconciliation of the EHR in order to improve error rates—which is likely to have an effect on both quality and cost.

Patients should be encouraged and given the option to be active participants in the management of their medical information.

Areas of further study would be to follow up with prior study participants to see if they have met with their PCP to discuss their medical chart inaccuracies and compare the rate of errors in their chart now to before the study.

Conclusions

Many thanks to Hollie McKinney LPN, Gwen E Sprague, MLS, and all the employees who agreed to participate in our study.

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Bibliography


Healthy Lifestyle Changes using Patient Portal Messaging

**Background**
As early as 1981, researchers highlighted the substantial preventability of cancer by changing lifestyle factors. Evidence indicates 30% to 60% of cancers are preventable by avoiding tobacco, a healthy diet, regular physical activity, and controlling weight (D. Bledsoe, MD 2016). Diet alone accounts for 35% of the most common types of cancer (ej cancer 2010). The World Health Organization (WHO) found that obesity has more than doubled since 1980. In 2007, Stevens et al found that nationwide 65% of adults aged 18 years and over were overweight and/or obese. Pool et al found that the increasing prevalence of overweight and obesity is at epidemic levels placing a significant financial burden on individual health and health care systems. Furthermore, the rate of obesity counseling by physicians is reportedly declining, possibly due to physicians lacking confidence that their counseling helps patients lose weight (Pool, A. C., Kraschnewski, J. L. et al, 2014). However, patients expect their physician to address weight issues, and when physicians don’t, patients may infer that their weight is not a problem. Thus it is imperative that physicians address weight, but such counseling needs to be quick and effective given physicians’ competing time demands. Simple interventions such as physicians merely acknowledging patients’ weight issues have been shown to increase desire and attempts to lose weight (Pool, A. C., Kraschnewski, J. L. et al, 2014). This suggests complex weight control interventions may not be needed to alter patient behavior. Based on the above discussion, it appears that physicians connecting with patients through the portal is an effective way to change behavior and reduce incidence rates of cancer, obesity and reported comorbidities. Considerable research has been done on factors that contribute to successful lifestyle changes and more effective tools to counsel patients on adopting healthier habits. However, even a cursory literature review indicates a high failure rate of patients when trying to change unhealthy behaviors over time. B.J. Fogg, Harvard Women’s Health Watch 2007 et al, has indicated that failure often results from physicians giving non-specific goals such as ‘get more exercise’ rather than ‘walk 20 minutes every day’. From this, it appears that goals are more likely to be reached if they are more specific and achievable. Even so, there can be a high patient failure rate to implement physician recommendations. The patient portal has proven to be an effective way of reaching patients when answering quick questions or in discussing test results. However, the utility of the patient portal addressing lifestyle changes and the effectiveness of this in creating change has yet to be studied. A previous study was conducted last year using the My Habit Book created by Wai Lee MBA, of UMKC Henry Block School of management to explore low cost ways of fostering lifestyle changes in patients.

**Objective**
The primary objective is to determine the effectiveness of meeting exercise goals for patients that receive once monthly messages vs those that receive once monthly messages through the patient portal.

**Study Design and Method**
The study was a randomized controlled study including patients from the Family Medicine Center.

Inclusion criteria included patients seen in the Family Medicine Center at Truman Medical Center Lakewood and were willing to participate in a study on changing lifestyle habits, specifically exercise.

Exclusion Criteria includes patients that are unable to provide informed consent or anyone who was not signed up for the patient portal.

A dynamic work list was created in Powerchart where the patients of the Family Medicine Center were selected. Of those selected a message through the portal was sent to approximately 2,000 individuals requesting participation in a research study. Individuals responded to the message, and were selected at random into one of two groups, either to be contacted weekly or once monthly, to remind the individual of their exercise goal and monitor response. Both groups received education on picking an exercise goal and any questions regarding their exercise goal were answered. If selected to the weekly messaging group individuals were messaged through the portal once weekly to remind them of their exercise goal and to monitor their progress. Those that were selected to the once monthly messaging group received a message once a month to remind them of their exercise goal and to monitor their progress. Individuals were followed over a two month period in the spring. **Results and Discussion**
My null hypothesize states when a physician has more frequent contact with a patient through portal messages a patient is less likely to make a lifestyle change.

Once Weekly Message Group:
Initial Number of Participants 12.
- Number of individuals meeting their exercise goal at 1 month was 6.
- Number of individuals meeting their exercise goal at 2 months was 4.
- Number of individuals not meeting their exercise goal at 1 month was 1.
- Number of individuals not meeting their exercise goal at 2 months was 3.
- Number of individuals lost to follow up after 1 month was 2.
- Number of individuals who never followed up was 3.

Once Monthly Message Group:
Initial Number of Participants 10.
- Number of individuals meeting their exercise goal at 1 month was 6.
- Number of individuals meeting their exercise goal at 2 months was 6.
- Number of individuals not meeting their exercise goal at 1 month was 1.
- Number of individuals not meeting their exercise goal at 2 months was 3.
- Number of individuals lost to follow up after 1 month was 4.
- Number of individuals who never followed up was 2.

The number of individuals who made lifestyle changes at one month was similar between the two groups. However, at two months the group that had once weekly messages had one more individual meeting goals and less individuals who failed to follow up.

**Conclusions**
It is difficult to say if the increase in portal communication helped aid individuals in making lifestyle changes. At 1 month there appears to be no difference, but there seems to be a small difference at two months with the amount of individuals still participating. A future study with a higher number of individuals in each group carried out for a longer duration of time would help to determine if there was a significant difference. In general the more contact a patient has with their physician is likely to improve their overall health. Additionally, constant reminders may indeed help the patient to make lifestyle changes. Where this study falls short is in the number of participants, a difficulty in sending the initial message and possibly in the fact that there was no person contact. An initial generic message was sent to all portal patients asking for participation in the study. However, individuals were unable to respond to this message and had to respond by creating a new message. Our sample size was most likely affected by this.

**Recommendations**
- Use of messaging patients through the portal may aid in making lifestyle changes and can be offered to patients, especially those who are motivated.
- Exercise education should be offered to patients at regular intervals. This can be offered while the physician is in the office or through a patient portal message.
- Motivational Interviewing is a key component in making lifestyle changes and should be utilized in educating patients about lifestyle changes.
- Physician and staff should be educated on motivational interviewing to better counsel patients on making lifestyle changes such as exercising.

**References**

**Acknowledgements**
This project was made possible by the contributions of Hollie McKinney LPN, Gwen Sprague MLS, Dr. David Voran, and the UMKC Research Department.
Auricular Acupuncture: Training Program Design, Skills Acquisition and Attitudes Assessment

Background
The use of acupuncture as a complementary and alternative medicine (CAM) therapy in the United States has been growing in recent decades. Auricular acupuncture, a subset of acupuncture involving the use of acupuncture points in the ear, is increasing in its use as well, especially in its use for the treatment of pain. Specifically, studies show its benefit with acute pain in the ER setting\(^1\) and low back pain\(^4,5\), and other generalized acute and chronic pain\(^6\). It has also been shown that auricular acupuncture is safe with no serious adverse effects, and few mild adverse effects\(^2\). Although there has been an increase in its use and its acceptance, Auricular Acupuncture is not routinely taught in medical school or residency programs. Training programs are lacking, and thus studies on design and the effectiveness of such programs are lacking. Our goal was to design and implement an auricular acupuncture training program to train residents in the theory and practice of auricular and study the effectiveness of such a program with regards to resident attitudes and competency with auricular acupuncture.

Objectives
• Design and implement an auricular acupuncture training program that will train residents and faculty in the theory and practice of auricular acupuncture for potential use on patients in the family medicine clinic.
• Study the effectiveness of the program in terms of increased perceived competency, and proper technique.
• Determine change in resident attitudes toward auricular acupuncture.

Study Design and Methods
• Study design: Program design and evaluation using initial cross sectional survey of residents during didactics, and pre and post-course surveys of participating residents on the day of the auricular acupuncture session.
• Study population: Residents and Faculty at UMKC Family Medicine Residency.
• Inclusion/exclusion criteria: Any interested family medicine or faculty member was included while such persons with prior training in auricular acupuncture were excluded.
• Methods/data collection: Seven point Likert scale surveys (1=strongly disagree, 4 = neutral, 7 = strongly agree) were used to assess attitudes toward and perceived competency with auricular acupuncture. An initial cross sectional survey of the entire residency was taken \((n = 19)\) during didactics, and pre-and post-prior surveys before and after the training program were given to the participating residents and faculty \((n = 10)\). The option for attendees to provide written feedback was included on post-course evaluation surveys.

Training Program Design
The training session was held at Truman Medical Center Lakewood on March 12th, 2019, and was taught by a Licensed Acupuncturist. The session consisted of a 2 hour PowerPoint presentation that included a background in Traditional Chinese Medicine and Auricular Acupuncture as well as instruction on point location and technique. This was followed by 2 hours of hands on procedural training. Acupressure beads were used. The training focused on traditional bead placement protocols for acute and chronic pain states and did not include Battlefield Acupuncture. Correct bead placement was assessed by the acupuncturist.

Results
The initial cross sectional survey showed that the group:
• Somewhat agreed on having a favorable view of auricular acupuncture
• Somewhat agreed on it being a safe treatment
• Somewhat disagreed or disagreed on feeling comfortable discussing or recommending auricular acupuncture for their patients, as well as feeling confident administering auricular acupuncture
• Agreed on resident interest in taking a course on auricular acupuncture
The pre and post course survey results were compared and analyzed with a Wilcoxon signed-rank test, revealing that;
• All questions besides question #4 showed a statistically significant improvement in the responses \((p < 0.05)\), before and after the course
• Although the sample size was small, this suggests an improvement in the comfort levels of those who attended the course in considering auricular acupuncture as a therapeutic option and in the confidence to actually administer auricular acupuncture

The course evaluation survey showed that attendees:
• Agreed that the course improved their knowledge and skills in auricular acupuncture (averaged between 6.2 to 6.5, which is between Agree and Strongly Agree)

Conclusions
• At baseline, UMKC Family Medicine residents generally had favorable attitudes toward auricular acupuncture and interest in learning auricular acupuncture, but did not feel comfortable discussing it as a treatment option for patients nor feel confident utilizing it as a potential treatment option.
• It was feasible to design and implement an introductory Auricular Acupuncture training program for residents and faculty.
• The training program was successful as evidenced by statistically significant improvements in attitudes towards and perceived competency with auricular acupuncture.
• The overall feedback regarding the course seemed very positive and residents/faculty involved would like more sessions in the future to practice. Those who took the course also stated that they enjoyed the practicality of the course and having hands on experience to practice on each other.

Recommendations and Future Directions
• Privileges have been granted to residents and faculty who successfully completed the course, however more family medicine faculty need to complete the course in order to provide the oversight for residents to be able to consistently perform auricular acupuncture in clinic.
• Based on feedback from the course evaluation, there could potentially be more future sessions scheduled to practice hone the skills needed to feel comfortable enough to use with patients in clinic.
• Future direction for the training program also can include repeating training focused on pain states or on learning new protocols such as for insomnia or anxiety.
• If auricular acupuncture becomes more prevalent in the clinic, then future research can be aimed at either resident

Acknowledgements
We would like to thank Dr. Angela Barnett, Sara Koron, L.A.C., Gwen E Sprague, MLS, and Hollie McKinney for making this project possible, as well as all resident and faculty participants in our project. Also, special thanks to An-Lin Cheng, PhD for assisting us with statistical analysis of the data.

References
Building teamwork and leadership skills through resident retreat

Results and Discussion
Twenty-seven pre-intervention surveys and twenty-three post-intervention surveys were completed. Using a p-value of <0.05, the aggregate data revealed a statistically significant improvement in residents’ perceived ability to manage the stress of residency (Q2), comfort in bringing up conflicts with other residents (Q9), comfort in bringing up conflicts with attending (Q4), and in the percentage of fellow residents they felt comfortable in leading as a team (Q7). There was not a significant difference in perceived comfort in bringing up conflicts with nursing and other staff members (Q5), or in the percentage of fellow residents they felt comfortable working on a team with (Q6). The cooking class was identified as providing the greatest improvement in comfort working on a leading a group of fellow residents.

Conclusions
The overall trend of data shows an improvement in overall resident perception of their ability to manage the stress of residency, their ability to bring up conflicts, and their comfort in working on a team of their peers. Of the interventions, the cooking class was noted to be perceived to provided the greatest improvement in both comfort working on a team of peers and leading a team of peers. This activity provided collaboration and various leadership opportunities. Three post-surveys for PGY-1 residents did not have an identified activity which led to a perceived increase in comfort leading a team of fellow residents. It was noted that each PG year group had increased numerical scores on both the pre- and post-intervention survey compared to the previous PG year. This may indicate a cumulative effect over multiple years of training.

Recommendations
We recommend the continued use of the resident retreat to improve teamwork and leadership skills. For future investigations, it would be beneficial to continue to use identifiers to compare pre- and post-intervention responses. Use of a standardized numeric identifier unique to each individual may allow data to be compared for a single individual over multiple training years. It may be beneficial to have activities which allow PGY-1 residents to lead a group to improve the comfort in team work and leadership in the PG year with the lowest comfort scores overall. Future surveys could provide discrete answer choices for questions 8 and 10 rather than allow for write-in answers. One could also link the reported improvement (post-survey questions 8 and 10) with the specific activity (post-survey questions 8 and 10) to evaluate if certain activities are associated with a greater degree of improvement.

Acknowledgements
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Hollie McKinney LPN
Gwen Sprague MLS

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References

Background
This quality improvement project utilized the existing resident retreat to build upon teamwork and leadership skills. The annual retreat includes family medicine PGY-1, PGY-2, and PGY-3 residents.

Objective
The goal of this study was to identify specific activities residents perceived led to improvement in teamwork and leadership skills.

Study Design and Method
This study included residents in training at UMKC Family Medicine Residency program. Participation in the study was voluntary. The interventions were part of the annual resident retreat.

Pre-intervention
Residents completed a pre-intervention survey using a 5 point Likert-type scale to determine individual baseline perception of comfort with respect to teamwork and leadership skills. Each participant generated a unique pin to identify their survey and anonymously match participants with their post test.

Intervention: The residents participated in the retreat which included a variety of activities, such as a scavenger hunt and cooking class. These activities were geared towards developing teamwork, communication, and leadership skills.

Post-intervention
The residents completed a post-retreat survey which included the same questions as the pre-retreat survey as well as questions which allowed the individual to identify specific activities which led to perceived improvement in these skills. Each resident used their unique pin, identical to the pre-retreat survey, which allowed comparison of individual responses. Questions 8 and 10 included write-in responses which were then grouped into categories.

Results and Discussion
Pre-intervention mean and Post-intervention mean

Activity which has improved comfort leading a team of fellow residents

Increase in comfort leading a team of fellow residents

Activity which has improved comfort working on a team of fellow residents

Increase in comfort working on a team of fellow residents

Bibliography

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FIT and Improving CRC Screening in TMC LW Primary Care Clinics

Objective
Does the implementation of FIT increase CRC screening in primary care practices at TMC LW? Additionally, does providing focused provider education about FIT lead to an additional increase in CRC screening?

Background
FIT (fecal immunochemical testing) has been a recent introduction into primary care clinics as another method for patients to undergo colorectal cancer screening. Annual FIT is now recommended as one option for colorectal cancer screening per the USPSTF (United States Preventive Services Task Force) as well as the Multi-Society Task Force on CRC (colorectal cancer screening). The development of FIT ideally will increase CRC screening by reaching the populations who cannot undergo colonoscopies due to comorbidities, financial barriers, and/or patient preferences. Additionally, FIT has been shown to have increased sensitivity when screening for CRC when compared with fecal occult blood testing (FOBT) specific to its specificity for human globin. The hope is that FIT, the newest method being widely used to screen for CRC, will lead to increased screening in the population at TMC LW (Truman Medical Centers at Lakewood). This study was developed to investigate if implementing FIT in the clinics and providing resident education about FIT leads to improved rates of CRC screening.

One study in the VA health system looked at FIT and if offering it in addition to FOBT increased CRC screening rates in their patient population. Those patients who had orders to complete FIT had a higher completion rate than those patients with orders to complete FOBT. Additionally, colon cancer was detected more in those who used FIT rather than FOBT for screening. Another study looked at the cost benefits of using FIT rather than FOBT, including if it increased subsequent colonoscopies based on FIT screening due to FIT having approximately a 2% false positive rate. The results of the study showed that FIT, when compared to FOBT, was more cost-effective and did not increase colonoscopy rates.2

One of the biggest benefits of FIT for the TMC LW patient population is cost. Many patients, especially those who are self-pay, frequently mention the cost burden of colonoscopies. At TMC LW, there are approximately 1700 colonoscopies performed each year. The cost of one colonoscopy is $2048 (not including physician services, pharmacists, lab charges). One FIT costs $21.67. Another benefit of FIT is ease of use. Lastly, the elderly population and those with comorbidities that make sedation and/or the procedure high risk from FIT rather than a colonoscopy. The potential limitations of FIT will be if the patient population is unable to or chooses not to follow up with the necessary colonoscopy if the screening test is positive. The research exists that FIT is effective at screening for CRC. CRC screening is an important aspect of preventative health and is therefore an important aspect of primary care practices, so the goal should be to increase the number of patients who are screened for CRC. The goal of this study was to see if FIT implementation has been beneficial and increased CRC screening rates in our patient population.

Study Design and Method
Study design: quality improvement project
Population: Patients ≥50 years of age at the TMC LW FMC and Pavilion - the patient population for which guidelines recommend routine CRC screening. There is not a specific sample size nor was there a recruitment process.

Procedures/Data collection: The HealtheRegistries data was evaluated for the current CRC screening rate at both clinics for the applicable patient population prior to implementing FIT. Primary care providers have access to HealtheRegistries information through an internet-based Powerchart access. This information is available as it is important for population health management and providing preventative care. FIT was implemented in the clinics in the fall of 2017 and was later added to the HealtheRegistries as a satisfier for CRC screening. After approximately 6 months lapses once FIT was a CRC screening satisfier on HealtheRegistries, the screening rates were again accessed through HealtheRegistries to determine if the percent of patients who have undergone CRC screening has increased. FIT being available. The presentation itself did not result in an immediate increase in CRC screening rates, but it may lead to an increase in CRC screening rates over time with increased provider knowledge regarding screening and the availability of FIT.

Conclusions
The availability of FIT may have increased CRC screening in primary care clinics at TMC LW. The only statistically significant difference was between November 2017 to December 2018 in the data collected from DCFM as a whole. Although it cannot definitely be concluded that the increase in the percent of patients screened for CRC was due to the introduction of FIT alone, it is valuable information knowing that screening rates continue to improve with FIT being available. The presentation itself did not result in an immediate increase in CRC screening rates, but it may lead to an increase in CRC screening rates over time with increased provider knowledge regarding screening and the availability of FIT.

Recommendations
Research also evaluated if patient education affects screening rates. One particular study looked at the type of education provided to patients with the FIT in order to determine whether or not targeted education vs general, non-targeted information on FIT would increase CRC screening. The authors concluded that targeted patient education regarding FIT did not increase CRC screening rates. They do surmise, however, that FIT with educational materials may improve CRC screening in primary care clinics as a whole.3 Another study attempted to increase CRC screening by outreach, specifically via mail. The article published in JAMA showed that the outreach improved CRC screening rates but more work with the colonoscopy mailed outreach vs FIT makes future goal to continue to increase CRC screening at TMC LW primary care clinics could be to trial a mailed outreach program. Additionally, due to the increasing prevalence of CRC in younger adults, the American Cancer Society has made a qualified recommendation to begin routine CRC screening in average-risk adults with high-sensitivity stool testing or visualization starting at age 45.4

References

Raw Data and Statistics

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Acknowledgements
Hollie McKinney, LPN, Gwen E Sprague, MLS, John Sparkman, Dr. An-Lin Cheng, Dr. Stephen Griffith, Dr. Beth Rosenemery, Dr. Miranda Huffman
Point-of-care ultrasound (POCUS) refers to the practice of medical professionals using ultrasound to diagnose problems wherever the patient is being treated. POCUS is possibly the longest step forward in bedside diagnosis in centuries. It has been growing as a part of other specialties for its ability to improve clinical outcomes, lower costs, and improve patient satisfaction among many other benefits. Resolution No. 602 (New York E) encouraged family medicine residency programs to include POCUS training. In AAFP Reprint No. 290D, the AAFP has established a recommended curriculum for POCUS. This quality improvement study was done to assess the effectiveness of online modules for teaching POCUS at UMKC Family and Community Medicine residency.

**Objective**

Determine if online modules were an effective self directed learning tool for POCUS.

**Study Design and Method**

The study was a prospective cohort involving 24 family medicine residents from 2 classes, 2020 and 2021. First, subjects were given questionnaires regarding their thoughts on POCUS. Residents were then all given a 4 hour hands on training course with instructors, US machines, and live subjects at the start of their intern year. In the following step half of the subjects (class of 2021) were assigned a series of online SonoSim modules. Following completion of the modules the questionnaire was repeated.

Questionnaires had a number of questions scored between 1 and 5. They inquired as to the residents' views on POCUS, confidence, and how frequently it is used. In addition there was a free text section where residents could report their barriers to learning and give feedback on what was most helpful for them.

Sign out logs were also placed beside the US machines and the subjects were asked to record when and where it was used. Poor subject adherence throughout the study led to inadequate data collection.

**Acknowledgements:**

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- Thank you Dr. O'dell for the making training at UNC Ultrasound Institute possible
- Thank you Hollie McKinney and Gwen Sprague, MLS for statistical reference, article collection and poster design/printing.

**Results and Discussion**

**Study Survey Participation by PGY Level**

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<td>PGY-2 Pre</td>
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<td>30</td>
</tr>
<tr>
<td>PGY-2 Post</td>
<td>30</td>
<td>10</td>
</tr>
</tbody>
</table>

What is your interest level in learning POCUS during residency training? (1 not at all - 5 extremely interested)

<table>
<thead>
<tr>
<th>POCUS Interest</th>
<th>Pre-Module</th>
<th>Post-module</th>
</tr>
</thead>
<tbody>
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<tr>
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<tr>
<td>5</td>
<td>60</td>
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</tr>
</tbody>
</table>

Do you feel that PCP’s can effectively incorporate POCUS into practice?

- 9% PCP’s can effectively incorporate POCUS into practice
- 91% PCP’s can effectively incorporate POCUS into practice

What is your comfort level NOW with POCUS?

<table>
<thead>
<tr>
<th>Total POCUS Comfort Level Pre and Post Module</th>
<th>Pre</th>
<th>Post</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>5</td>
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</table>

**Conclusions**

- The online self study curriculum seemed to increase overall comfort with POCUS
- POCUS use seemingly decreased overall. Tracking was difficult due to self-reporting.
- Collection of self-reported data restricts interpretation of results; Dropout was 54% in second year of tracking data.
- Given the increase in comfort as well as the positive attitudes toward incorporating POCUS, the online modules were effective at teaching, but led to overall dissatisfaction or non-adherence because of perceived time constraints.
- Almost all residents feel that Family Medicine could incorporate POCUS into practice.
- Lastly, 4 of the 11 free text responses mentioned the need for more dedicated hands on training time.

**Recommendations**

- Assign modules 1 at a time and have correlated hands on training during rotation associated scan techniques, i.e. IVC/Aorta during cardiology rotation, lungs with pulmonology rotation.
- Find alternative way to track US machine usage
- Collect Surveys for future quality improvement studies in person to increase compliance, possibly at block end meetings.
- Self Directed learning and structure guidance to the residents.

**References**


Chorioamnionitis is a diagnosis that over the years has come to have many definitions. Currently, the term Triple I or intrauterine infection and inflammation is used per ACOG and Up To Date and is defined as the histologic presence of bacteria is seen beyond the amnion and chorion. Their criteria are maternal fever (defined as 39.0 or 38.0 twice thirty minutes apart) plus one of the following: fetal tachycardia, WBC > 15,000 in the absence of steroids, purulent fluid, amniotic fluid elevated WBC. Occasionally the placenta will be sent for histologic confirmation. An emphasis has been placed on histologic confirmation of the placenta. Its condition comes with added costs with extra labs, treatment and may have longer hospitalizations for both mother and infant. Currently, TMC Lakewood facility uses a variety of criteria to diagnose a patient with chorioamnionitis: maternal fever, fetal tachycardia, maternal tachycardia, fundal tenderness, foul-smelling discharge and elevated WBC. Occasionally the placenta will be sent for histologic confirmation.

**Objective**

What diagnostic criteria are we using to diagnose chorioamnionitis and how does it compare to that of ACOG and Up to Date? Secondary objective includes looking at the number of vaginal exams performed.

**Study and Design**

Retrospective chart review of term pregnancies dated from 2014 to 2017 from the birth logs

Inclusion:
- Term
- Singleton pregnancies
- Chorioamnionitis diagnosis
- Vaginal delivery

Exclusion:
- Preterm (<37 wga)
- Scheduled or unscheduled cesarean section
- UHW deliveries

Recorded if patient’s log included fever, maternal tachycardia, fetal tachycardia, purulent discharge, fundal tenderness, number of vaginal exams and if placenta was sent to histology.

**Background**

Chorioamnionitis is a diagnosis that over the years has come to have many definitions. Currently, the term Triple I or intrauterine infection and inflammation is used per ACOG and Up To Date and is defined as the histologic presence of bacteria is seen beyond the amnion and chorion. Their criteria are maternal fever (defined as 39.0 or 38.0 twice thirty minutes apart) plus one of the following: fetal tachycardia, WBC > 15,000 in the absence of steroids, purulent fluid, amniotic fluid elevated WBC. Occasionally the placenta will be sent for histologic confirmation. An emphasis has been placed on histologic confirmation of the placenta. Its condition comes with added costs with extra labs, treatment and may have longer hospitalizations for both mother and infant. Currently, TMC Lakewood facility uses a variety of criteria to diagnose a patient with chorioamnionitis: maternal fever, fetal tachycardia, maternal tachycardia, fundal tenderness, foul-smelling discharge and elevated WBC. Occasionally the placenta will be sent for histologic confirmation.

There were a total of 4,378 total births during the study years, which includes SVD, c/s, VAVD, and FAVD

After going through each pregnancy and using our inclusion/exclusion criteria we were only able to find 52 term vaginal deliveries that were diagnosed with chorioamnionitis based on the labor progress notes.

We looked at maternal fever, maternal tachycardia, fetal tachycardia, fundal tenderness and purulent discharge and had the following breakdown:

- Maternal fever: 36 or 69.2%
- Maternal tachycardia: 28 or 53.8%
- Fetal tachycardia: 23 or 44.2%
- Fundal tenderness: 0%
- Purulent discharge: 0%

Only 24 out of the 52 included deliveries (46.1%) had confirmed histologic presence of chorioamnionitis

- 4 out of 52 suspected chorio cases had placentas sent for histological confirmation but did not have chorio identified
- Only 1 had maternal fever documented, 0 had fetal tachycardia documented

We also looked at the number of vaginal exams recorded for each of these, which totaled 250 or an average of 4.8 per person.

Diagnosing chorioamnionitis early on is of utmost importance for both mother and baby while in labor. It can help reduce maternal and fetal morbidity as well as postnatal costs, including decreasing unnecessary hospital stays and antibiotics. Our study had an extremely small sample size, which was not expected as the avg prevalence is 5%. Our diagnostic criteria is varied and often not directly found in the labor progress note. In depth chart review had to take place several times in order to see what exactly was used in the diagnosis of these 52 cases. Having a standard procedure for suspected chorioamnionitis may be a valuable prospective study.

**Results and Discussion**

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**Conclusions**

- Only 1.1% of total term vaginal deliveries were reported during the study years.
- Maternal fever is the one feature that must be included in the diagnosis, but this was only the case in 69% of cases. Most of the time it simply was not recorded or was subjective in nature.
- While the average number of vaginal exams was within a respectable range, there were numerous patients who had greater than 10 vaginal exams, greatly putting them at risk for chorio.
- There are several areas of improvement when it comes to documentation in the labor progress notes, which would help to better facilitate chorio diagnoses.

**Recommendations:**

- Formalized charting for chorio diagnosis, including check boxes on the order set for indications (i.e. c section justification).
- Sending specimens to histology for confirmation.
- Limiting vaginal exams.
- Proper coding, including putting chorio as a diagnosis in the discharge summary.

**References**


**Acknowledgements:**

THANK YOU Gwen Sprague, MLS and Dr. Jennifer Livingston at DCFM TMC Lakewood.