

Arizona Health Education Centers
12th Annual Interprofessional RHPP Conference
Poster Presentation
Part Two

Purpose of the Project

Implement point of care ultrasound (POCUS) in primary care to improve patient experience, improve accuracy, and facilitate early detection and treatment, particularly with adults 65 years old or older experiencing shortness of breath.

Clinical Question

Can point of care ultrasound in primary care improve patient experience, accuracy, and early detection of cardiac and pulmonary conditions of adults 65 years old and older who are experiencing shortness of breath compared to those receiving a clinical examination?

Proposed Best Practice

Patient Perspective

- POCUS noninvasive
- Real-time images
- Communication
- Deeper understanding of condition
- Rational behind treatment decisions

Accuracy

- Immediate results
- Minimize delays
- Reduces hospital admissions
- Improved patient outcomes

Early detection of cardiac and pulmonary conditions

- Shortness of breath is associated with a high death rate in pre-hospital patients
- Complex
- More in depth evaluation
- Improve patient outcomes

Problem

Diagnosing the cause of dyspnea in primary care is challenging.

Most primary care clinics do not have resources like radiography, computed tomography or lab in the office.

Review of the Literature

- One study employed telemedicine with ultrasonography and discovered that patients not only believed there was a benefit to undergoing the procedure, but they would do it again since they considered the contact enjoyable, innovative, and useful (Andersen et al., 2019).
- POCUS, when added to a standard diagnostic pathway, led to statistically substantial more accurate diagnoses than the standard diagnostic pathway alone, according to the findings of five RCTs involving 1483 participants (Gartlehner et al., 2021).
- POCUS allows for a comprehensive assessment, aiding in the prevention of potential complications when used during the initial examination (Istrail, 2022).

Setting

Rural primary care clinic in Dewey, Arizona

Patient Population

Adults 65 year old or greater in a primary care clinic

Conclusion

The use of POCUS in primary care is patient-centered, non-invasive assessment method that allows for more extensive examinations and the early diagnosis of underlying heart and pulmonary problems.



Purpose of the Project

- Improve weight reduction in patients with BMI >25 presenting to primary care clinics in Houston, Texas
- Educate providers and patients on treatment guidelines and options for obesity

Problem

- Prevalence of obesity in Harris County is 37.4% in 2020⁷ as compared to the national obesity rate of 42.4%⁸
- In 2020, 35.8% of adults in Texas were considered obese compared to the national average of 31.9%⁶
- Three-quarters of the population in Texas suffer from Obesity-related health complications such as diabetes, heart disease, and cancer.⁵
- Many patients, particularly those who do not speak English, do not receive appropriate interventions to promote weight reduction.¹

Setting

Centra Clinic in Houston, Texas

Patient Population

Adults between 18-65 years old

Clinical Question

In adults between the age of 18-65 with BMI > 25, how does enhanced patient education and use of guidelines improve weight reduction compared to no intervention?

Review of the Literature

- Screen all patients for obesity and treat it as a chronic condition.¹⁰
- Encourage lifestyle modification as the main method of treatment with changes to eating habits, exercise, and behavior therapy.⁴
- Offer structured intervention programs for 6 months to 1 year (in-person or online)¹⁰
- Consider gender, race, culture, and socioeconomic factors that impact a patient's ability to lose weight.¹¹
- Adapt written education to multiple languages to enhance accessibility for patients who do not speak English.¹
- Consider surgical or pharmacological interventions for obesity refractory to lifestyle modifications.⁹

Proposed Best Practice

- Screen all patients and begin discussing weight reduction with all patients with a BMI over 25.
- Develop a personalized plan for each patient that incorporates changes to eating habits, exercise, and in-person support.
- Cultural personalization of dietary intervention is essential during counseling. Adherence is higher when dietary education is aligned with the patients' culture and already established habits. I.e.: Use the foods they are familiar with.
- Use a multidisciplinary approach and involve a dietitian and counselor in the care of the patient
- Provide long-term follow up to support maintenance of weight loss.
- Printed education in the language of the patient to improve understanding and adherence to weight reduction plan. Centra clinic patient population includes Spanish and English-speaking patient, pamphlets are needed in Spanish for education

Conclusion

All patients should be screened for elevated BMI during primary care visits. Those with a BMI over 25 should be offered interventions to help them lose weight and mitigate their risk for chronic conditions.



References



CDC
resources

Purpose of the Project

The Human papillomavirus (HPV) is found to cause various cancers (such as cervical, anal, penile, vaginal, and oropharyngeal cancers) and genital warts. Improve educating families to increase the vaccination rate for the adolescents ages 11-15 against HPV.

Problem

Cervical cancer is one of the leading causes of death in women in the United States. More than 9 out of 10 cervical cancers are caused by HPV. There are some families still hesitant about their children's vaccination against HPV.

Setting

Primary care clinic, Queen Creek, Maricopa County, AZ.
 Retrospective chart review of adolescent patients at a clinic in the Queen Creek area.

Patient Population

Adolescent patients age 11-15
 Maricopa County Population: 78.7% White, 16.5% Hispanic or Latino, 3.4% Black or African American, 0.5% Native Hawaiian and or pacific islander, 0.5% American Indian or Alaska Native.

Clinical Question

How to (I) enhance parents' education to aid in the increase of HPV vaccination (O) for adolescents aged 11-15 (P) by the clinic's providers by May 2024 (T)

Conclusion

- Recommend adding a HPV session into the existing school-based sexual health curriculum.
- Recommend school-based interventions like providing educational sessions for parents and adolescents, distributing informational materials, and collaborating with school health services.
- Recommend enhancing primary care providers knowledge and communication skills, using presumptive approach regarding HPV vaccination and following up after parents have declined the vaccine.
- Recommend developing culturally sensitive and evidence-based educational materials, utilizing social media, schools, healthcare providers, and community organizations, and engaging key stakeholders, including parents, healthcare professionals, and policymakers.

Proposed Best Practice

- Best practice suggests that education and awareness among middle school students are highly effective and can increase HPV vaccination uptake.
- Researchers suggests adding HPV education to the middle school student health curriculum.
- Research suggests that enhancing school-based health education sessions about HPV for parents and adolescents is an effective tool to improve awareness, uptake, and acceptance among adolescents.
- Research showed this intervention enhanced the rate of HPV vaccine uptake immediately. One year later, HPV awareness and HPV vaccine uptake were still higher in the intervention group compared to the control group, which showed the effectiveness of the suggested intervention.

Review of the Literature

After reviewing the relevant literatures, these points were identified:

- The HPV vaccination is associated with a substantially reduced risk of invasive cervical cancer and other cancers in young adults.
- Improving parents' educational interventions will increase vaccination uptake among adolescents. Healthcare providers significantly influence parental decision-making regarding HPV vaccination.
- Enhance provider's communication skills for initiating talk about HPV vaccinations with parents.
- Encourage providers to use a presumptive approach. Utilizing media and social marketing strategies such as radio, various television channels, social media, and print media play a significant role and effectively increase awareness and knowledge about HPV vaccination.

Purpose of the Project

Improve adolescent health services and support in primary care by providing adolescent females who report being sexually active with adolescent-specific contraceptive counseling to increase awareness of the most and moderately effective methods of contraception to prevent unintended teen pregnancy and address other issues unique to teens during their annual wellness preventive evaluation, routine visits, and follow-up visits.

Problem

- Adolescents' risk for unintended pregnancy is high and occurs mostly because of unmet needs for contraception including inconsistent use, incorrect use, and nonuse of contraception.
- Unintended pregnancy among adolescents aged 15 to 19 years old accounts for 75 percent of pregnancy cases in the United States and is associated with negative outcomes in women and infants including low birth weights, premature births, infant mortality, and postpartum depression.
- In 2021, of the Arizona population of females aged 15-19, 43.8% identified as Hispanic or Latino. Within this age group, Hispanic or Latino females accounted for 61.1% of births in the same year.
- Birth rates among Hispanic or Latino teenage females have been higher in Arizona than nationally from 2011- 2021.
- Of 4,912 teenage pregnancies in 2021, Hispanic or Latino females had the highest percentage of all pregnancies (59.6%), followed by White non-Hispanics (23.3%), American Indian females (7.7%), Black or African Americans (7.2%), and Asian or Pacific Islanders (1.2%).
- In Pima County, AZ, there were 620 pregnancies (18.3%) of females 15-19 years old in 2021.

Setting and Patient Population

- Primary care clinic in Southeast Tucson, Pima County, AZ.
- Adolescents aged 15 to 19 years who are sexually active.

Clinical Question

In a primary care clinic, would adolescent-specific contraceptive counseling, versus standard contraceptive counseling, increase the use of the most or moderately effective methods of contraception among adolescent females preventing unintended teen pregnancy?

Review of the Literature

Motivating factors in adolescents increase the likelihood of seeking contraception.

- Viewing pregnancy as a negative outcome, education goals, maturity, pregnancy scare, pregnancy experience, family & friends, and clinician support.

Removing potential barriers can increase the use of more effective methods of contraception and decrease pregnancy rates in adolescents.

- Confidentiality, parental notification, cost, access, misconceptions, and lack of knowledge about effectiveness, contraindications, adverse effects, and potential barriers to adherence.

Developmental factors in adolescents affect the ability to implement and adhere to contraceptive use.

- Early adolescents (10-14 yrs.) have difficulty in planning & have idealistic, concrete, living-in-the-moment thinking
- Middle and late adolescents (15-18 yrs. and older) are more able to plan, make decisions, and problem-solve.

Individual factors and preferences affect the adolescents' choice of contraception.

- The most important factors for adolescents in choosing contraception are its effectiveness, duration, reversibility, ease of use, and side effects.
- Next to abstinence, long-acting reversible contraception (LARC) methods are the most effective methods of contraception and first-line options for adolescents with less than 1% pregnancy in 1 year.
- Other options such as depot medroxyprogesterone acetate (DMPA- injectable), hormonal pills, transdermal patch, and vaginal ring, the pregnancy rate is 4-7% in one year.

References

- Arizona Department of Health Services. (2024). Teenage pregnancy, Arizona, 2011-2021.
- Centers for Disease Control and Prevention. (2023). Reproductive health: Contraception.
- Centers for Disease Control and Prevention. (2023). Reproductive health: Teen pregnancy.
- Centers for Disease Control and Prevention. (2023). Reproductive health: Unintended pregnancy.
- Center for Young Women's Health. (2022). Contraception: General information. In Health Guides.
- Chacko, M.R. (2023). Contraception: Issues specific to adolescents. UpToDate.

Proposed Best Practice

- Provide education on adolescent-specific contraceptive counseling to the primary care team at the clinic comprised of the FNP provider, NP students, RN Case Manager, and MAs.
- Facilitate easy access to clinic staff for counseling to help ensure consistent and correct use of contraception by providing the name of the clinic, name of contact clinician, phone number, and instructions about what to do if they have concerns about their contraceptive method.
- Present options for contraception starting with the most effective options and address the adolescent's motivation, any potential barriers, medical history, sexual history, developmental, and individual factors, and preferences.
- LARC methods are first-line options for adolescents because they do not require strategies to increase adherence or any action on the part of the adolescent for its efficacy. LARC includes hormonal implant Nexplanon and intrauterine device (IUD) Mirena.
- Access a free education video about LARC using this link: <https://youtu.be/TAHG02R2iqY>
- Provide strategies to increase adherence to the adolescent when choosing DMPA, hormonal pills, patch, and vaginal ring.
- Effective methods of contraception do not prevent sexually transmitted infections (STIs). Using condoms consistently and correctly prevents STIs.

Conclusion

- Improving adolescent health services and support in primary care will be a key strategy in helping increase the use of the most or moderately effective method of contraception in adolescent females aged 15-19 years old, thus preventing unintended teen pregnancy.
- The health of adolescents including their sexual and reproductive health is enhanced when they have the information, resources, and support to make informed decisions. Addressing contraception needs and other issues unique to teens during their annual wellness preventive evaluation, routine visits, and follow-up visits will enhance teen health and overall well-being.

Improving HIV Prevention in Primary Care

College of Health & Human Services
School of Nursing
Laurel Combs

Faculty Sponsor: Bridget Wicks, MS, RN, FNP-C

Purpose of the Project

Pre-exposure prophylaxis (PrEP) has been shown to reduce the risk of Human Immunodeficiency Virus (HIV) transmission through sex by 99% when used as prescribed. However, less than 30% of people in the U.S. who have indications for PrEP are prescribed PrEP.

Explore the significance of PrEP in the context of primary care and look carefully into the barriers that have hampered its optimal utilization.

Problem

New HIV infections in the U.S. are disproportionately higher among Black, Hispanic/Latinx, and persons of multiple races. There is a significant discrepancy in prescribing PrEP to specific subpopulations, including women, people of Black and Hispanic descent, and individuals <24 years old.

Understanding the barriers to successful implementation and utilization of PrEP in these subpopulations is a critical imperative for health equity, public health strategy, individual empowerment, and societal well-being.

Setting/Patient population

Clinics providing primary care services and sexual health services to individuals aged 16 and older in the United States between 2017-2022.

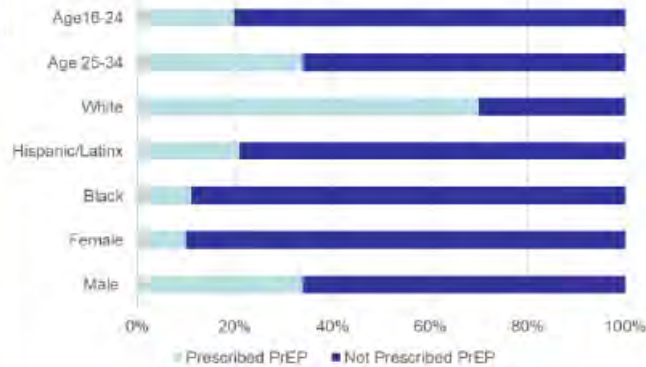
For individuals aged 16 and older with an indication for PrEP, with a focus on those ages 16-34, 56% of newly acquired HIV infections are in individuals in this age range.

Research synthesis study using CINAHL database: 6 studies were included in the synthesis.

Clinical Question

What are the primary barriers to successful implementation and utilization of PrEP for HIV prevention in subpopulations and how do these barriers affect the provision and uptake of PrEP compared to other standards of care.

PrEP prescriptions by population



Review of the Literature

Barriers to prescribing PrEP among primary care providers include lack of awareness and knowledge of the ongoing management, indications for PrEP, perceived benefits, believing PrEP needs to be managed by a specialist, concerns for resistance and toxicity, provider attitude and bias, and not routinely screening for sexual health behaviors during primary care visits.

Barriers identified by patients in utilizing PrEP included lack of awareness, costs, potential side effects, need for quarterly visits, patients not identifying themselves as high-risk, and concern for stigma, bias, and mistrust from their healthcare provider.

Conclusion & Proposed Best Practice

- Provide provider training on PrEP annually to increase provider knowledge of current guidelines, research, safety, benefits, and indications for PrEP
- Develop a short sexual health screening questionnaire to be completed by the patient at every visit. This survey will help the provider identify at-risk individuals and initiate a discussion with the patient regarding PrEP.
- Providers should be aware of their own implicit and explicit societal biases.
- Provide resources such as ViivConnect, Gilead Science's Advancing Access, MISTR, and *Ready, Set, PrEP* to patient's who need financial assistance or may lack reliable transportation for follow up visits.

Resources

Sexual Health
Questionnaire



PrEP Resources



References



SCAN ME

Purpose of the Project

- Statin therapy for primary prevention of ASCVD is widely underutilized in primary care practice despite strongly supported guideline recommendations.
- Educate primary care providers on 2018 ACC/AHA recommendations for primary prevention with statin therapy including utilization of the PCE to promote shared decision making in the prevention of ASCVD.

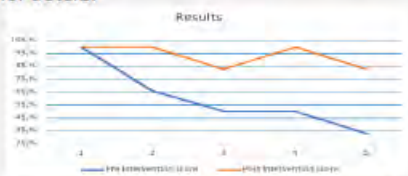
Problem

- CVD is the leading cause of morbidity and mortality in the U.S. predicted to cost billions. Statins are fundamental medications utilized in the primary prevention of CVD and reduce CV mortality by 31%.
- Provider adherence to guideline recommendations are variable and more than 50% of eligible patients are not on an appropriate statin dosage.

Setting

Rural primary care clinic in Green Valley, AZ. Pima County.

- Educational session was provided to PCP's, MA, and clinic staff utilizing ACC/AHA 2018 guidelines. The post-test results demonstrated a 34% improvement in knowledge. Refer to the graph for details.



Patient Population

Adults aged 40-75 years of age eligible for primary prevention of statin therapy based on the ACC/AHA 2018 blood cholesterol management guidelines.

Clinical Question

Do primary care providers (P) have improved knowledge, confidence, and beliefs about prescribing statin therapy in eligible adults based on the ACC/AHA 2018 Guideline on the Management of Blood Cholesterol (O) when provided with a basic statin educational session of the guidelines and risk calculator tool (I) compared with no session (C) after 12 weeks (T)?

Review of the Literature

- 53% of practicing providers cannot identify the 4 statin groups and only 29% know the definition of low, moderate, and high intensity statins.
- The literature review suggests that continuing education and integrated decision support tools and educational workshops improve provider adherence to clinical guidelines and appropriate statin prescribing for the reduction of ASCVD risk.
- ACA/AHA 2018 blood cholesterol management guidelines are superior in the effectiveness of primary prevention when compared to other guidelines.
- PCE is the most recommended ASCVD risk calculator for the U.S. population and results in increased provider guideline adherence when utilized.
- Utilization of a PCE risk calculator increases provider clinical guidelines adherence.

References



Proposed Best Practice

Provider Interventions:

- Guideline implementation should be multifaceted and dynamic including EHR integrated decision support tools, quarterly clinical outreach workshops, robust audit and feedback systems, and web-based algorithms and resource manuals.
- Utilization of the PCE ASCVD risk calculator as outlined below.

ACC/AHA 2018 Guidelines Primary Prevention:

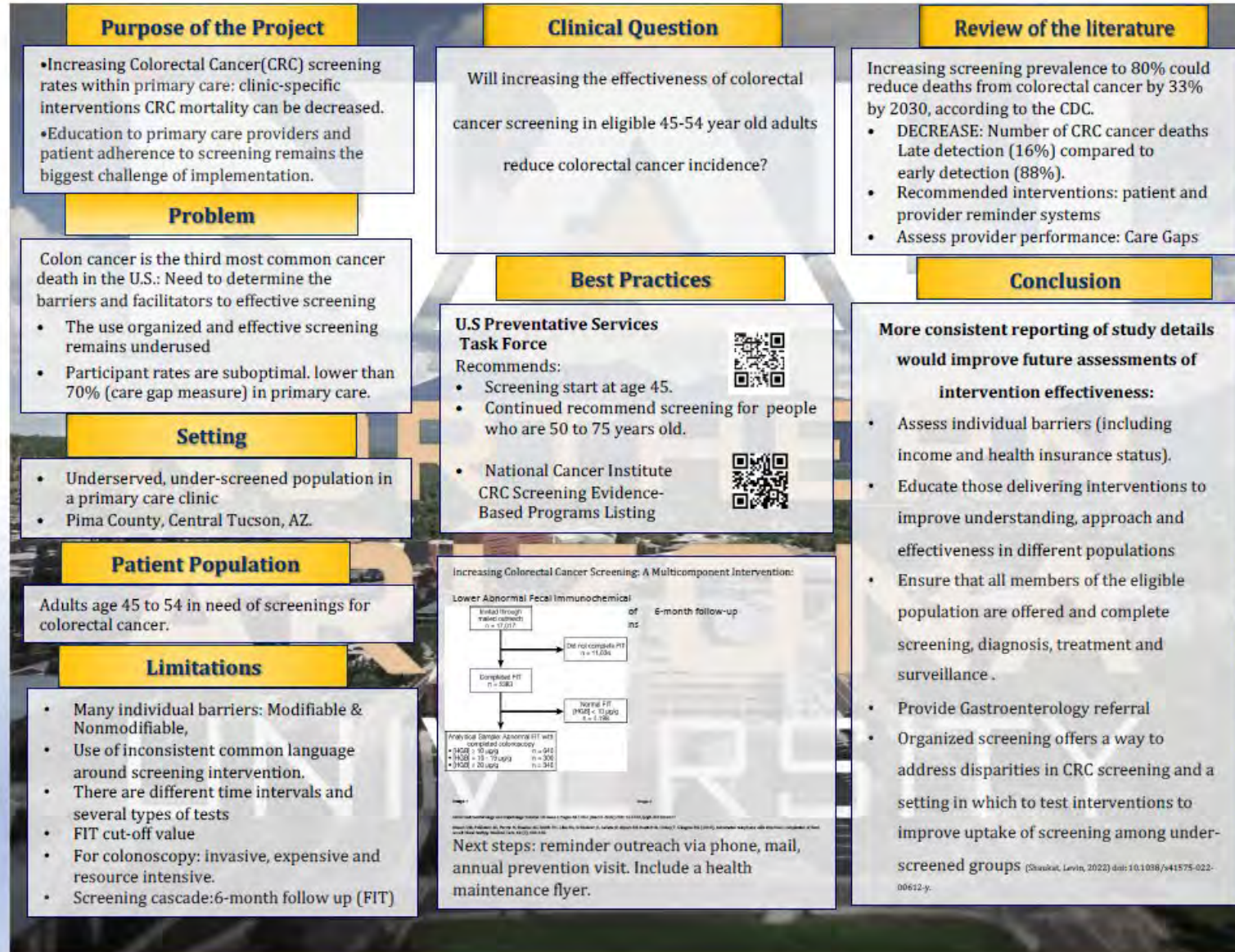
- Primary prevention includes utilization of the PCE ASCVD risk calculator in adults age 40-75 and LDL-C ≥ 70 <190 mg/dL without diabetes mellitus to promote risk discussion.
- If risk is $\geq 7.5\%$ + risk enhancers initiate moderate intensity statin to reduce LDL-C by 30-49%.
- If risk $\geq 20\%$ initiate statin to reduce LDL-C $\geq 50\%$.
- If risk is uncertain consider measuring CAC in selected adults.
- Encourage healthy lifestyles in all patients to prevent or reduce ASCVD risk.
- LDL-C ≥ 190 mg/dL No risk assessment start high intensity statin.
- Diabetes Mellitus and age 40-75 start moderate intensity statin.

Conclusion

Recommend all providers utilize PCE for ASCVD risk assessment for primary prevention in patients ages 40-75 and LDL-C ≥ 70 <190 mg/dL without diabetes mellitus.

Recommend quarterly continuing education workshops, integrated decision support tools, and robust audit and feedback systems.

Recommend utilization of ACC/AHA 2018 Blood Cholesterol Management Guidelines in the primary care setting.



Integrating Mental Health Services into Primary Care Settings

College of Health & Human Services
School of Nursing
Garyn Grijalva
Faculty Sponsor: Tanya Hatch, DNP

Purpose of the Project

Practice an integrated model that uses a collaborative, team-approach between primary care and mental health providers to optimize effectiveness and efficiency in patients' overall health, increase provider communication and continuity of care, while also decreasing the alarming rise in mental health disorders.

Problem

Mental health illness among adults and adolescents in the United States including Arizona, continues to rise. Many patients unknowingly suffer from mental health disorders until seen by a PCP.

According to the Centers for Disease Control and Prevention (2023), over 1 in 5 US adults live with mental illness & 1 in 5 adolescents (12-18 yo) will be affected with mental illness at some point in their adolescent life (Centers for Disease Control and Prevention, 2023).

Setting

Rural and urban Arizona, primary care/family medicine facilities which offer an integrated or collaborative approach with employed medical and mental health providers, who utilize a shared EMR and communication systems.

The mental health providers will be able to diagnose, prescribe mental health medication and offer additional psychotherapy and counseling for a variety of populations, cultures and communities in Arizona. These services can be provided remotely or in-person.

Patient Population

Rural and urban Arizona adults and adolescents who express interest in psychiatry or counseling during their primary care visit and/or at-risk patients who display signs & symptoms of mental health illness during medical interview and/or mod-severe scores with GAD-7 and PHQ-9 screening forms.

- Adolescent male and females ages 12+
- Adults male and female ages 18+

Clinical Question

(P) Do adult and adolescent patients, (I) referred to integrated primary care facilities that offer mental health services, (O) see an increase in their overall mental and physical health (C) in comparison to those who do not use a collaborative approach?

Review of the Literature

The literature review identified that mental health can be positively influenced with integrated health care models. By utilizing appropriate resources, funding and professional guidance, positive outcomes can result. Many of the organizations who trialed these care models, modified and implemented similar methods after the studies were completed. Although some providers admitted to struggling initially with integration of the new care model into their clinical practice, an increase in satisfaction of collaborative efforts with behavioral health services and consultations was reported with most studies after several months of implementation from provider and patient perspectives.

Using comprehensive screening tools, such as GAD-7 & PHQ-9, several studies saw an increase in the number of patients receiving mental health diagnoses compared to simple questionnaires or previous assessment methods, especially in patients with chronic disease states. This resulted in increased treatment for patients with mental health disorders that otherwise may not have been recognized.

A common shared concern in multiple studies was management in follow up care for patients referred for further psych treatment without the use of a shared EMR system or organization.

Conclusion

By effectively integrating PC & BH services using the PCBH model, patients can be treated for mental health & physical needs more efficiently & effectively. Improved clinical outcomes, quality of life for patients, patient/provider satisfaction & reduced healthcare system costs can share priority (Mautone et al., 2021). With current state rankings, AZ stands as one of the lowest ranks, 49th, for supporting adults with mental health challenges, and 29th for supporting youth with mental health challenges (City of Phoenix Human Services Department, 2023). Change is needed to overcome this disparity.

Proposed Best Practice

The primary care behavioral health model aligns with the quadruple aim objectives (American Psychological Association, 2022).

Best Practices:

PCBH Model using the G.A.T.H.E.R Approach for Implementation

The PCBH model is a team-based primary care approach which includes a licensed behavioral health professional who is utilized as a Behavioral Health Consultant. The model's main goal is to enhance the primary care team's ability to manage and treat problems and conditions, extending the primary care services. They act as a core member of the primary care team and contribute to the implementation of practice-wide prevention and early identification. In addition to interventional strategies, they share responsibility and liability with the PC team to offer targeted treatment for behavioral health conditions/suboptimal health behaviors, which exacerbate physical health concerns and chronic health conditions across the lifespan (American Psychological Association, 2022).

G.A.T.H.E.R

- **Generalist:** strives to intervene with all patients on day of referral.
- **Accessible:** shares clinic space, resources, and assists the team in various ways
- **Team-Based:** engages with a team to maximize effectiveness of PC team
- **High Productivity:** high volume of pts seen in a day to support the financial aspect of the team, as most visits are short.
- **Educator:** help improve the team's biopsychosocial assessment and intervention skills and processes.
- **Routine:** become part of the routine, daily clinic work flow as an integrated member of the PC team (Reiter et al., 2018).

References



Low-Dose Computed Tomography for Lung Cancer Screening in Eligible Patients

College of Health & Human Services School of Nursing

Matthew Sullivan

Faculty Sponsor: Dr. Linda Mackey

Purpose of the Project

To increase primary care provider (PCP) adherence to lung cancer screening recommendations

Problem

Lung cancer screening uptake is low at ~15% of eligible candidates. Barriers exist that contribute to this low uptake.

Setting

Primary Care Offices

Patient Population

Asymptomatic adults aged 50 to 80 years old with a 20 pack-year smoking history and are current smokers or have quit within the past 15 years

Clinical Question

In patients who are eligible for lung cancer screening, does educating primary care providers compared to no education related to screening recommendations increase low-dose computed tomography lung cancer screening rates for eligible patients?

Review of the Literature

Level I - In a systematic review and meta-analysis of RCTs (including NLST and NELSON trials) including 84,558 participants, Sadate et al. (2020) found that when compared to other methods of screening for lung cancer (CXR, sputum cytology, etc.), the LDCT group had a reduction of lung cancer-specific mortality of 17% and relative reduction of overall mortality of 4%.

Level II - The National Lung Screening Trial (NLST) was an RCT that included 53,454 high-risk participants comparing annual screening by LDCT with CXR for 3 years. Relative-reduction in lung cancer mortality of 20% and all-cause mortality reduction of 6.7% in the LDCT group (Aberle et al., 2011).

Proposed Best Practice

Educate Primary Care Providers (PCP) about the recommendations for low-dose computed tomography lung cancer screening and when to utilize for eligible patients

Conclusion

Lung and bronchus cancer is the leading cause of cancer-related deaths in adults (Siegel et al., 2017).

Screening for lung cancer in eligible patients has shown reduction in lung cancer and all-cause mortality, and is endorsed by major health organizations, including USPSTF, ACCP, NCCN, ACR.

Lung cancer screening has been poorly adopted, only 15% of eligible patients have been screened (Deffebach & Humphrey, 2022). Primary care providers and their patients may benefit from an educational session discussing:

- Screening criteria as defined by the USPSTF
- Barriers to screening and how to overcome
 - Potential benefits
 - Potential harms of screening
 - Interpreting results from LDCT
 - Managing findings from screenings
 - When to discontinue screening.

Pelvic Inflammatory Disease: Early Detection in Primary Care

College of Health and Human Services
School of Nursing
Paige Levinsohn, MSN, RN
Faculty Sponsor: Terry Smith, FNP



Purpose of the Project

The purpose of this project is to discuss the findings of several studies related to pelvic inflammatory disease (PID) and its potential complications, as well as highlight the importance of evidence-based screening and prevention guidelines for PID.

This project will educate health care providers on potential signs and symptoms of PID that will aid in a timely diagnosis and treatment.

Patient Population

Sexually experienced adolescent and adult women with abnormal vaginal discharge of all ethnicities and socioeconomic backgrounds.

Setting

Primary care clinics, gynecologic clinics, sexual health clinics, community health clinics, and public health departments.

Problem

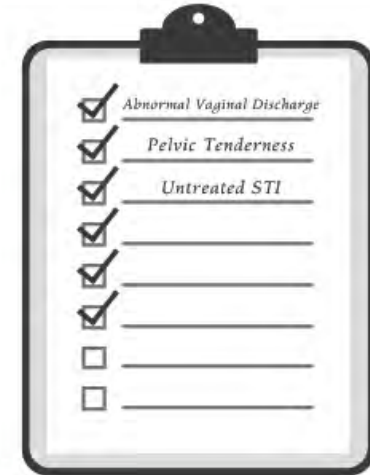
PID, a serious complication of chlamydia and gonorrhea, can often go undetected when symptoms are mild and is a major public health concern.² Inconsistent screening practices contribute to this issue, with nearly half of eligible women missed.⁴ A standardized, evidence-based approach to PID prevention and screening is crucial to prevent infertility, chronic pain, and other complications.^{2,3,7}

Clinical Question

What is the impact (I) of a pelvic exam (compared to no pelvic exam) (C) on the early recognition and diagnosis of pelvic inflammatory disease (O) among female patients presenting with abnormal discharge (P) in the primary care setting?

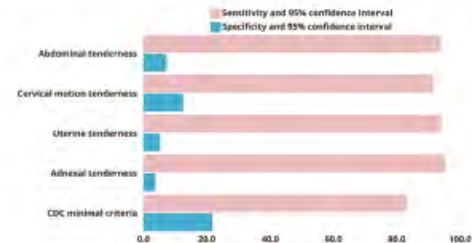
Proposed Best Practice

Routine pelvic exams to assess for cervical motion, uterine, and adnexal tenderness for all sexually active women with reports of abnormal discharge. The rationale for implementing this policy is that PID is a serious condition that is difficult to diagnose and can lead to complications that may affect a patient's quality of life.^{6,8,11}



Review of Literature

Pelvic exams are a valuable tool for screening women with abnormal vaginal discharge in primary care. This discharge can be a sign of underlying STIs that contribute to PID.^{1,6,7,8} One key finding to note is adnexal tenderness which indicates inflammation of the pelvic organs, and has the lowest false positive rate in the diagnosis of PID.^{5,10} Early detection and treatment of PID are crucial to prevent complications like infertility and ectopic pregnancy. Additionally, there's some evidence suggesting a potential link between PID and ovarian cancer in the long term.^{6,11} By incorporating pelvic exams into the screening process, primary care providers can improve women's reproductive health outcomes.



Among the signs and symptoms that may be present with PID, adnexal tenderness had the greatest sensitivity, or lowest false positive rate.¹⁰

References



Conclusion

Pelvic exams are a valuable tool for identifying potential PID in women with abnormal vaginal discharge. Early detection and treatment of PID can prevent serious complications and may even reduce the long-term risk of ovarian cancer.^{1,4,6,11} Integrating pelvic exams into the screening process empowers primary care providers to significantly improve women's reproductive health.





Purpose of the Project

The purpose of this project is to analyze the research to see if people with STIs would benefit from the use of POC testing in a clinical setting verse traditional testing that is sent out to a laboratory. Using this research to provide recommendations on STI testing could improve treatment rates, increase follow up visits, decrease spread of infection, and improve patient satisfaction levels.

Problem

Traditional testing for STIs can take days to receive a result and even weeks in rural low-income communities. During this time, patients may be spreading the infection in the community, being treated for the wrong infection, or may be lost to follow up and never receive their results (Grillo-Ardila et al., 2020).

Setting/Population

Adolescents and adults with STI symptoms or those requiring STI screenings in primary care clinics in Southern Arizona.

Clinical Question

In adolescents and adults with STIs in a primary care setting, does POC testing verse traditional laboratory testing have better treatment outcomes for patients and less spread of infection?

Review of the Literature

-Nucleic acid amplification tests are the current standard recommended testing used to detect these STI infections, however, these tests generally require complex, expensive equipment in a laboratory facility, diagnoses are not made immediately, and treatment decisions can be delayed (Dawkin et al., 2022).
-The use of the POC testing in primary care clinics could reduce both the overtreatment and undertreatment of STIs and would have minimal impact on staff time and visit duration for patients (Wi et al., 2019).
- An accurate and timely diagnosis will also help to slow the spread of STIs in communities, thereby improving the overall health of the community (Fuller et al., 2021).

Proposed Best Practice

-Facilities should ensure that the POC tests that are used adhere to the ASSURED criteria in order to maximize impact (Dawkin et al., 2022).
-Syphilis (including congenital syphilis), gonorrhea, chlamydia, chancroid, and HIV must be reported by either the provider or laboratory to the health department in every state (CDC, 2021).
-POC STI testing can have a global impact by improving access to STI testing worldwide, which benefits both low- and high-income countries and aligns with global health goals (Toskin et al., 2018).

Conclusions

POC testing for STIs can offer rapid, accurate, and readily accessible diagnostics to help improve patient outcomes, decrease spread of disease, ensure correct treatments, and increase follow up (Grillo-Ardila et al., 2020). However, barriers do exist including costs, integration challenges, quality assurance and control, and a lack of integration of test with multiple tests targeting different pathogens (Cristillo et al., 2017).

Purpose of the Project

The purpose of this project is to determine if the use of POCUS for adult patients with suspected DVT in rural primary care can improve overall patient outcomes and lower costs by quickly and accurately diagnosing DVT.

This project focuses on the benefits and barriers of early diagnosis of DVT utilizing POCUS in the rural primary care setting.

Problem

There are two major issues with regards to diagnosing DVT in the rural health primary care office. The first is accessibility to high quality care with available resources to diagnose DVT accurately and quickly to improve patient outcomes. The second is the financial burden associated with referral to the emergency department for stat imaging which can be completed with POCUS in the primary care setting.

Setting

The proposed setting is the rural primary care outpatient clinic.

Patient Population

The patient population is adult patients in the rural primary care setting with suspected DVT.

Signs and symptoms of suspected DVT may include pain, cramping, throbbing, or swelling in one leg, changes in skin color or temperature, and/or shortness of breath.

Clinical Question

For adult patients in the rural primary care setting with suspected DVT, how does implementation of POCUS for suspected DVT screening compared to emergency department referral for stat ultrasound, affect the diagnosis of DVT in terms of patient outcomes and overall costs?

Review of the Literature

DVT is a common condition caused by venous thromboembolism (VTE) which produces blood clots in the veins. It is a preventable condition of morbidity and mortality in the United States, and VTE affects 1 out of 1000 people with 2/3 of them being diagnosed with DVT and 1/3 pulmonary embolism.

The gold standard imaging for suspected DVT is compression ultrasound (CUS) with doppler. The data has shown that sensitivity and specificity of CUS to be greater than 95%.

Further data has shown that there was no clinically significant difference comparing POCUS and radiologic ultrasound in hospital settings and verified its use for preliminary diagnosis of DVT.

Rural primary care patients experience significant burdens regarding accessible care. Transportation and financial burden are often the biggest hurdles for rural health patients. Rural patients can be 1-3 hours away from hospital and outpatient radiology services, which can result in a delay in treatment or access to care.

In the rural primary care setting, POCUS is rarely used even though it is a low-cost portable solution that can quickly diagnose a DVT in the primary care office. Use of POCUS reduces the amount of costly conventional imaging tests performed in a radiology department and allows for faster diagnosis and treatment for DVT.

Proposed Best Practice

Proposed best practice is increased training to current and future providers in the rural primary care setting. POCUS is proven to be safe, accurate, and beneficial to patient outcomes, and it can be performed by most primary care providers with only a small amount of training.

POCUS enhances the standard assessment skills of primary care practitioners and prompts expedited referrals and accelerated clinical management of recurrent illnesses. Clinical challenges could be reduced by deploying portable and accessible bedside ultrasound devices to be used by trained providers. The cost of training and equipment compared to the savings is negligible, and the lifesaving benefit to patients is priceless.

Conclusion

POCUS in primary care can significantly decrease the cost of care while increasing accessibility to quality services not typically available at the rural primary care office.

In the rural primary care setting, POCUS is rarely used even though it is a low-cost portable solution that can quickly diagnose a DVT in the primary care office. Use of POCUS reduces the amount of costly conventional imaging tests performed in a radiology department and allows for faster diagnosis and treatment for DVT.

Patient perception of POCUS in primary care has been overwhelmingly positive, while simultaneously reducing morbidity and mortality and improving patient outcomes.

Feedback from a recent discussion with providers at a rural primary care practice in Flagstaff, AZ recently implemented POCUS and found it to be helpful in confirming diagnoses. From February 2022 through February 2024, the providers have identified 10 patients for suspected DVT evaluation (4 of which were positive for DVT) out of a total panel of 1350 patients.

Barriers to POCUS use for suspected DVT include lack of reliable mentors and low volume of scans for providers to gain a sense of comfort and confidence in their diagnosis.



Photo courtesy of Butterfly Network, Inc.



References

Promoting Sexual Health and Wellness in Young Adults Through the Implementation of Standardized Screening Assessments

College of Health & Human Services

School of Nursing

Ateh Reiter

Faculty Sponsor: Shelley Vaughn, DNP

Purpose of the Project

Implementing a universal screening tool for sexual health and wellness that encompasses the risk for STIs in young adults who are sexually active patients during all episodic visits. With the purpose of treating asymptomatic patients, preventing adverse outcomes, and empowering each patient regarding their sexual health.

Problem

To address the inconsistent and absent standardized screening of sexually active young adults. The rapid rise in sexually transmitted infections may be attributed to the reduced public focus on sexual health due to recent public health crises such as the COVID-19 pandemic and the opioid overdose epidemic. Regardless, in 2022, 2.5 million cases of gonorrhea, chlamydia, and syphilis were reported. The risk of infected young adults who are asymptomatic poses a risk of transmission, developing adverse outcomes, and increased healthcare costs.

Setting

Target community: Community based primary care clinics throughout Maricopa.

Patient Population

Sexually active patients age 15-35. One in five people in the United States has an STI, with nearly half of new STIs occurring in youth aged 15-24.

Maricopa County demographics: 58.4% White, non-Hispanic, 32.6% Hispanic, 1.8% Native American and Alaskan Native, 12.2% Black or African American.

Clinical Question

The purpose of this paper is to ask: In all sexually active patients ages 15-35 (P), will the implementation of a standardized screening tool utilized at each visit (I), compared with annual or STI visits only (C), influence early detection and treatment of asymptomatic patients (O)?

Review of the Literature

Sexually transmitted diseases pose a significant public health challenge, particularly among sexually active adults aged 15-35. Although primary care providers are well-positioned to screen for and treat STIs, many patients, especially adolescents, go unscreened as providers struggle with competing priorities during the visit. Implementing a standardized screening tool for STIs in this age group is crucial for promoting a lifetime of health, fostering trusting relationships between patients and providers, and improving overall healthcare outcomes.

Implementing a standardized screening tool for chlamydia in young adults had the most significant impact on early detection and treatment. This comprehensive strategy recognizes the high prevalence of these infections in this demographic. Young adults are at a heightened risk due to various factors such as changing sexual behaviors, multiple partners, and inconsistent condom use. A screening tool ensures that healthcare providers consistently assess the sexual health of their patients during every visit, facilitating early detection and intervention and decreasing the overall impact on public health.

Proposed Best Practice

- Implement health setting, collaboration among healthcare providers, public health agencies, educational institutions, and community organizations is essential to ensure consistent use and implementation of the tool.
- Accessibility and affordability are essential.
- The screening tool should be user-friendly, culturally sensitive, considers diverse language, and cultural backgrounds.
- Confidentiality and privacy must be safeguarded throughout the screening process.
- Education and counseling should accompany the screening process. Counseling services should be available for those who test positive for STIs, offering support, treatment options, and partner notification guidance.
- Follow-up and continuity of care are essential components of successful STI screening programs. Positive test results should trigger prompt treatment and follow-up care to prevent complications and further transmission.
- Data collection and evaluation are critical for monitoring the effectiveness of the screening tool and identifying areas for improvement.

Conclusion

Recommendations:

- Provide training for healthcare providers on using the screening tool, conducting sensitive discussions, and delivering culturally competent care. Offer educational sessions for young adults to raise awareness about STIs and the importance of screening.
- Integrate STI screening into existing healthcare services, such as routine check-ups and reproductive health visits.
- Through monitoring and evaluation, use data to assess the impact of the screening tool and identify areas for improvement. Consider scaling up successful interventions to reach a broader population of young adults.
- Continuously adapt the screening tool based on feedback from stakeholders and emerging trends in STI epidemiology.

Standardizing Screenings for Eating Disorders in the Primary Care Setting

College of Health & Human Services
 School of Nursing
 Hazel N. Gonzales

Faculty Sponsor: Tanya Hatch, DNP

Purpose of the Project

Eating disorders are the second deadliest mental health illness here in the United States. However, preventative screening is not routinely performed in the primary care setting. This inconsistent implementation led to a number of adolescents and young adults being left unscreened and untreated for their condition.

Primary care providers are best positioned to address this care gap because they are more familiar with their patients.

Problem

An estimated 28.8 million of the U.S. population experienced or is experiencing some form of eating disorder. The lifetime prevalence of eating disorders is estimated at 2.7%. Simply, one in seven males and one in 5 females will experience eating disorders by age 40.

If left untreated, eating disorders could have a significant adverse health outcome. These include conditions involving the neurological, cardiology, gastroenterology, and endocrine.

Setting

Systematic, meta-analysis, quantitative and qualitative analysis of national surveys of adolescents and adult patients throughout the country utilizing standardized testing instruments. Eating disorder instruments used include SCOFF, EDS-PC, and Eating Disorders Examination Questionnaire (EDE-Q).

Patient Population

Adolescents - 12-19 years old
 Young adults -20-35 years old

Pima County demographics per U.S. Census in 2022

10-14 years old –32,847	25-29 years old – 37, 531
15-19 years old – 35,819	30-34 years old – 32, 921
20-24 years old – 47003	35-39 years old – 31, 725

Clinical Question

Does standardizing a screening improve detection and intervention among adolescents and young adults without obvious eating disorder symptoms compared to the current practice of screening as needed within one year?

Review of the Literature

During the literature search for eating disorder screening, the general results yielded 110 results from CINAHL (Cumulative Index of Nursing and Allied Health) databases and 109 from PubMed Central. This has been narrowed down by implementing the following search parameters and limiters: full text articles from year 2018-2024 and articles written in English. Additional search parameters include eating disorder, screening, primary care standard screening, practice guidelines, quantitative, qualitative, systematic review, and meta-analysis.

Eating disorders are prevalent not just in the United States but also worldwide. The disorder is highest in the U.S. and European countries. Contrary to earlier understanding, eating disorders affect both male and female. However, manifestations are different among the sexes.

Several barriers were identified during the review that kept the primary care providers from implementing a standardized screening of eating disorders. Common barriers include inadequate training and communication skills to assess the condition effectively. Another barrier identified is the lack of effective treatment management for patients with eating disorders.

Proposed Best Practice

Reducing and eliminating the care gap between adolescents and young adults with undiagnosed eating disorders through standardized screening is strongly advised by the American Academy of Pediatricians (AAP), the American Psychological Association (APA), the American Academy of Family Physicians (AAFP), and Academy of Eating Disorders (AED).

The most highly used screening tool is Sick Control One Fat Food (SCOFF) and Eating Disorder Screen for Primary Care and Eating Disorders Examination Questionnaire (EDE-Q). However, the most commonly used questionnaire is the SCOFF.

SCOFF questions

- Do you make yourself Sick because you feel uncomfortably full?
- Do you worry that you have lost Control over how much you eat?
- Have you recently lost more than One stone (14 lb) in a 3-month period?
- Do you believe yourself to be Fat when others say you are too thin?
- Would you say that Food dominates your life?

Conclusion

The negative health consequences of eating disorders have a long-lasting effect on the health of a patient, and thus, standardized screening like those for diabetes and high cholesterol can't be overemphasized.

Therefore, it is strongly recommended that primary care providers screen all adolescents and young adults with normal weight for eating disorders at least once yearly during the annual wellness exam.

To address the skills barrier among primary care providers, it is recommended that PCPs undergo regular training in assessments, communication, and sensitivity.



Example of a primary syphilis sore



Secondary rash from syphilis on palms of hands



Secondary rash from syphilis on torso

Purpose of the Project

Educate and provide providers with latest syphilis resources to assist in improved management of patients with syphilis infection

Identify more cases of syphilis infection in the clinical setting

Problem

Syphilis is increasing in Arizona. From 2020 to 2021, syphilis had the highest percent increase at 29% (ADHS, 2021)

Arizona has an outbreak of syphilis among women and babies, having the highest rate of congenital syphilis in the U.S. (ADHS, 2023)

If left untreated, syphilis causes damage to bones, ears, eyes, heart, the brain, and can lead to stillbirths and death (ADHS, 2021)

Contributing factors in syphilis rise:

- Risky sexual behaviors
- Substance abuse
- Decrease in condom use
- Reduction in sexually transmitted infections (STI) services at state and local level, decrease in testing
- Benzathine Bicillin shortage, fear of adverse effects after application
- Lack of knowledge and training in evolving best practices

Setting

Primary care clinics in Yuma, AZ

Patient Population

Adult in the primary care setting including high risk patients (multiple sex partners, pregnant, HIV, MSM, substance use, homelessness)



References



ADHS resources

Clinical Question

- Population (P): In clinicians or future provider students in a primary care, internal medicine, family medicine setting
- Intervention (I): does the use of syphilis education with resources (algorithms, syphilis quick guides, flowcharts) for syphilis staging and management
- Comparison (C): compared to the use of a self-search of current guidelines by clinicians
- Outcome (O): assist clinicians in improved decision-making with syphilis diagnosis, staging and treatment?

Review of the Literature

The literature review conducted demonstrates a need for increased provider education on the topic of sexual health, specifically syphilis. As well as need for increased awareness of syphilis and a more standardized approach when screening. Needs for improved access to syphilis trainings, updates and protocols.

The incorporation of a syphilis algorithm; guided practice, syphilis management, and was useful for clinicians in a variety of clinical settings with diverse populations.

The use of reverse sequencing algorithm screening, beginning testing with a treponemal antibody specific test to syphilis (the causative organism) can identify more positive tests compared to beginning with a screening nontreponemal nonspecific test

Benzathine penicillin G long acting (LA) is still the 1st line treatment choice for treatment. Doxycycline is an acceptable second line treatment, found to have a similar serological response

Syphilis rapid test or POC incorporation can potentially identify more cases of syphilis in clinical settings, factors to consider include training staff, costs and importance to confirm test with follow up treponemal test

Proposed Best Practice

Use of syphilis step by step resources in clinical practice to assist in assessing history, risk factors, physical exam, testing, and treatment information. To aid in staging and management of syphilis infection. Resources will include key takeaways

History:

- Prior diagnosis of syphilis? Prior treatment? Sexual Hx?
- Any symptoms of syphilis?
- Primary syphilis: Painless indurated chancre (sore),
- Secondary syphilis: Rash to body, palms and/or soles of feet, condyloma lata (cutaneous lesions), systemic (lymphadenopathy), patchy hair loss
- Early latent syphilis: symptoms in the last 12 months or documented negative syphilis test
- Late latent syphilis: No symptoms with no treatment
- Tertiary syphilis: Internal organ damage (heart, blood vessels, brain) and nervous system, can result in death

Physical Exam: oral, genital, and/or anal lesions, hair loss, lymphadenopathy, rash to body

- Testing: Two blood tests needed in Arizona, start with: Treponemal antibody test (EIA/CIA, TP-PA/FTA-AB) with reflex to non-treponemal screening test (RPR/VDRL) used to monitor treatment response
- Pregnancy: 1st prenatal visit, 28-32 weeks gestation, & at delivery

Treatment:

- Benzathine penicillin G LA 1st line choice
- Primary, secondary, early latent syphilis: Benzathine penicillin G 2.4 million units x 1 injection once
- Late latent syphilis: Benzathine penicillin G 2.4 million units, total 3 injection doses at weekly intervals (every 7 days)
- Total therapy dose: Benzathine penicillin G 7.2 million units
- *Alternative therapy doxycycline for non-pregnant patients allergic to Benzathine penicillin

Follow up:

- Serology testing based on staging usually at 6 months and 12 months. But many factors affect RPR (disease stage, gender, age)
- Remember the local health department is a great resource and guidance

Conclusion

Importance of continued syphilis education for providers for proper management of patients with syphilis

The Decline of Pediatric Vaccine Rates in Rural Communities

College of Nursing
Richard Hernandez

Faculty Sponsor: Adrien Gupton, DNP, RN, FNP-C

Purpose of the Project

Determine effects of increased vaccine education in regard to pediatric vaccine rates.

Educate parents and guardians on the pros and cons of keeping up-to-date on pediatric vaccines.

Highlight the disparities in pediatric vaccine rates displayed between rural and urban communities.

Problem

Pediatric vaccine rates lower in rural communities when compared to urban communities. Furthermore, pediatric vaccine rates steadily declined year to year beginning in 2019. From 1980 to 2019, pediatric vaccine rates increased or stabilized on a yearly basis. (Rosenthal, 2023).

Setting

Rural primary care clinic, Kingman, Mohave County AZ.

Implementing teaching to pediatric patients, in particular, those due for vaccines at time of visit. Conducting review of literature that displays disparities in pediatric vaccine rates between rural and urban communities.

Patient Population

Pediatric patients aged 18 or younger in rural primary care setting that arrive for yearly checkup; particularly those due or behind for vaccines.

Mohave County Demographics:
75.9% Caucasian, 9.6% Hispanic, 7.07% Multiracial., 1.6% American Indian, 1.1% Asian, 1.0% African American (U.S. Census, 2023).

Clinical Question

In the rural primary care setting (P), what are the effects of increased vaccine education (I) compared to normal education (C) on pediatric vaccine rates (O)?

Review of the Literature

Literature review reveals lower vaccination rates in children living outside of metropolitan statistical area (MSA) than those living in an MSA (48% to 62% in influenza, for example) (Albers et. al., 2023). In particular, vaccine rates show largest disparity among children living in rural communities.

For the 3rd year in a row, overall national vaccine rates for diseases fell by roughly 1%. Coverage for measles, mumps and rubella vaccine, polio, varicella, and for diphtheria, tetanus, and pertussis was 95% in 2019-2020, 94% for 2020-2021, and 93% for 2021-2022 (AAFP, 2023). There will be estimated 250,000 children unprotected against measles and other infectious diseases in 2023.

As of March 15, 2024, there were 60 reported cases of measles in the United States, more than all of 2023 (despite less than 25% of the year underway) (Tin, 2024).

Proposed Best Practice

Vaccines as a form of primary prevention are only effective when administered regularly with high adherence rates.

National public health authorities advise stronger vaccination strategies and an emphasis in continuity of vaccination services.

Healthcare professionals are encouraged to use Penchansky and Thomas's 5As of vaccine access' policy framework (availability, affordability, acceptability, awareness, and activation) to evaluate and adjust potential reasonings behind the fall of rural pediatric vaccine rates (Calixte, 2023).

Conclusion

Vaccine programs may be a key proponent in saving lives lost due to decreased vaccine status. Decreased vaccine rates likely attributed to increase in primary healthcare needs, gaps in vaccine registries and vaccine hesitancy

With rural communities traditionally displaying decreased vaccine rates regardless, an overall decline in vaccine rates nationwide could potentially cause disease outbreaks in underserved populations.

Incentivization of rural providers such as pharmacists, dentists, and PCP's to emphasize maintaining patients' pediatric vaccine schedule may help improve rates in underserved areas.



Utilization of the ASCVD Risk Estimator for post-menopausal women (>50yo)

College of Health and Human Services

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Jessica Long

Faculty Sponsor: Adrien Gupton, DNP, RN, CNM, FNP-C



References

Purpose of the Project

The purpose of this project is to identify those patients at risk for suffering a cardiovascular event and implement primary prevention and early treatment.

Problem

Cardiovascular disease (CVD) is the number one killer of women in the world, totaling 21% of female deaths in 2017. Failure to recognize those patients that are at a high risk of a cardiac event delays early treatment and intervention.

Setting

Rural primary care, Kingman, Mohave County, AZ.

Patient Population

The patient population focuses on addressing the cardiovascular risk factors and early detection for post-menopausal women, >50 years of age.

Mohave County Demographics: 75.3% White/non-Hispanic, 18.1% Hispanic, Native American/Alaskan native 3%, African American 1.4%, >65 years old 32.4%, Female 49.3%

Clinical Question

In postmenopausal women (P), what is the benefit of implementation of the ASCVD Risk Stratification Tool (I), compared with standard of care (C), on primary prevention of cardiovascular/cerebrovascular events (O) within 12 months (T)?

Review of the Literature

The literature review conducted suggests that early identification of those patients with an elevated ASCVD risk score allows for timely intervention and treatment.

Early menopause is associated with a greater risk for CVD

Literature also reviewed estrogen exposure measured by reproductive years; shorter reproductive lifespan was associated with a higher risk of CVD events, particularly stroke

Literature recommended risk stratification is differentiated between genders for more accurate evaluation.

Proposed Best Practice

Healthy lifestyle modifications reduce the risk for CVD/mortality; physical activity, healthy diet, reduced alcohol intake, smoking cessation, weight loss

Adults Aged 40-75, LDL 70-189, not diabetic

- **Low Risk (<5%)**- Emphasize lifestyle changes
- **Borderline Risk (5-7.5%)**- Risk enhancers may favor statin therapy
- **Intermediate Risk (7.5%-20%)**- Risk enhancers favor statin therapy, consider coronary artery calcium (CAC) scoring
- **High Risk (>20%)**- Initiate high intensity statin therapy

ASCVD Risk Enhancers: familial history, persistently elevated LDL >160, chronic kidney disease, metabolic syndrome, inflammatory diseases, ethnicity and gender considerations

Conclusion

Recommend early intervention and education with patients who are at any risk for atherosclerotic cardiovascular disease (ASCVD).

Recommend prepopulated ASCVD Risk Score calculator generated into EHR and SOAP note including labs and other risk factor criteria that creates a hard stop for providers, requiring intervention, when patients are at a 5% risk or higher.



Purpose of the Project

Using evidence-based research related to the importance of screening for syphilis, utilize a pre-screening risk assessment tool to identify at-risk patients who would benefit from syphilis screening and increase the frequency in screening.

Problem

Year	Reported Cases	Rates per 100,000 population
2018	3251	45.3
2019	4025	55.3
2020	4461	62.4
2021	6331	87.0
2022	7496	101.9

Reported cases and rates of syphilis have been steadily increasing in the State of Arizona over the past five reported years, shown above³.

In the Springerville clinic, screenings for syphilis are generally completed when patients present symptomatic or express concerns for possible syphilis or sexually transmitted infections (STIs).

Setting

White Mountain Regional Medical Center – Rural Clinic, Springerville, Apache County, AZ.

Patient Population

Non-pregnant, sexually active patients ages 15-44.^{2, 8}

Identifying at-risk patients for syphilis screening.

Apache County demographics as of July 2023: 18.9% White, non-Hispanic, 7.2% Hispanic or Latino, 73.4% Native American and Alaskan Native, 1.8% Two or more races, 0.7% Black or African American, 0.5% Asian.¹²

Clinical Question

(P) For Primary Care Providers,

(I) can the use of a pre-screening risk assessment tool during patient visits for all non-pregnant, sexually active patients ages 15-44 be used to identify potential candidates and elicit patient agreement to syphilis screening through laboratory testing,

(C) compared to directly asking sexually active patients ages 15-44 to complete laboratory testing,

(O) increase the rate in which PCPs can initiate an agreement with the patient to complete syphilis screening through laboratory testing?

Review of the Literature

Implementation of a pre-screening risk assessment tool is shown to indicate statistical significance where providers and patients can be educated about the risks and potential outcomes of syphilis and other STIs¹⁴

The importance of early screening for syphilis reaps benefits of early detection, treatment, including curing the syphilis infection, prevention of transmission, and preventing progression to a late stage of the syphilis disease.¹⁰

A syphilis pre-screening tool promotes awareness, education, and creates opportunities¹⁴ for growth within the gaps that exist for syphilis or STI pre-screening tools.

Research studies are needed to fill gaps and provide more information about various risk assessment tools that can be of use in the primary care setting. Validation of these tools through additional studies will define more accurately those with increased risk and most benefitted by screening.¹¹

Proposed Best Practice

Pre-screening risk assessment tool – Used by PCP to identify patients with increased risk of syphilis infection.

Identified patients who would be recommended to screen for syphilis/STIs. Patients have the option to decline or accept.

Community considerations in relation to the prevalence, sociodemographic, and behavioral factors should determine which persons should be screened for syphilis. The customized tool should include common risk factors where prevalence is increased.

Pre-Screening Risk Assessment Tool



Conclusion

All PCPs utilize a pre-screening risk assessment tool to identify non-pregnant, sexually active patients ages 14-44 with increased risk of infection to elicit syphilis screenings.

Educate PCPs and clinic staff of the syphilis issue in Arizona, risk factors, testing, treatment, and follow up testing to prepare them for educating patients.

Recommend periodic review of pre-screening risk assessment parameters to adjust according to latest data, trends, population and geographic fluctuations, and updates from CDC, state, and local health departments.

References





Forecasting the Utility of Artificial Intelligence in Rural Trauma Emergency Room Decision-Making



Benson Lagusis¹, Allistair Nathan¹, Kyle Avery¹
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Background

Arizona has among the highest number of level-1 trauma centers per capita in the United States, at a level 180% greater than the median (1). The number of level-1 trauma centers nationally is dwarfed, however, by the number of level II-V centers in the United States (2). Operating in resource and specialist-poor environments, rural hospitals must make additional decisions that are uncommon in large level 1 trauma centers. The decision to transfer, transfuse, and operate on patients in rural hospitals requires taking in many data points, experience, and nuance.

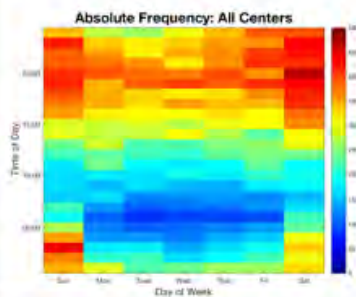
The field of trauma is data-rich in the United States, where many data points are available regarding the evaluation, management, and outcomes of common traumatic injuries (3). Artificial intelligence (AI) is a field that can use these data to assist healthcare professionals in decision-making; these decisions can assist in resource-management, clinical decision support, and interpretations of diagnostic tests.

Our objective is to evaluate 5 studies of AI trauma tools and determine their potential utility in rural hospitals.

Predicting Trauma Volume

Dennis, Stonko, Callcut, et al. 2019 (4)

- Three years of admission data from five level 1 trauma centers were randomly fed to an artificial neural network. These five trauma centers were in different geographic regions around the US.
- 43,380 traumas were evaluated across 5,410 days
- When the model was fed new data, trauma volumes were successfully predicted across multiple trauma centers with high-levels of reliability
 - R=0.8934 on high-volume days, and R=0.7936 on low-volume days



Incorporating neural networks into the electronic medical record of rural hospitals can help professionals prepare for trauma volume and acuity, and manage resources accordingly

Gunshot Wounds (GSW)

Nederpelt, Mokhtari, Asler, et al. 2021 (5)

- Objective: develop and test a machine-learning algorithm that can make predictions to support in-field triage after GSW trauma.
- Field artificial intelligence triage (FAIT) was trained with inputs from 29,816 patients such as vital signs, patient information, and GSW location, to predict shock, surgery, and major transfusion.
- AUROC of 0.89, 0.86, and 0.82 for prediction of shock, early major transfusion, and major surgery, respectively.

Overtriage, unnecessary transfer, and inability to recognize critical injuries are problems that are faced by rural emergency rooms. Deep learning algorithms like FAIT could help in clinical decision support for GSW patients.

Blunt Trauma in Pediatric Patients

Shahi, Shahi, Phillips, et al. 2020 (6)

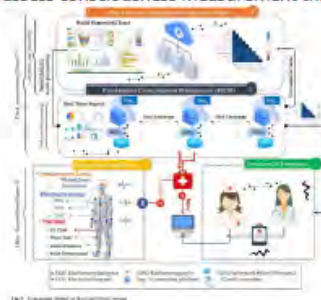
- 477 pediatric patients who sustained a blunt solid organ injury (BSOI) between 2009-2018 were used to develop and test four models: major transfusion (MT), failure of non-operative management, mortality, and successful non-operative management.
- The accuracy of all four models was between 83.8-91.9%

Children are recognized as having increased complexity when it comes to assessing hemodynamic risk in BSOI. Using AI to aid in decisions to transfer or operate could tremendously increase outcomes in complex pediatric patients.

Determining Level of Consciousness

El-Rashidy, Sedic, Siam Al, et al. 2023 (7)

- Objective: use large datasets to create machine learning models that can assess consciousness measurement through multiple data elements



Machine learning can be deployed to predict consciousness using EMR data. The utility of this capability in the rural environment is questionable, given the ease of other established tests.

F.A.S.T. Exams for Trauma

Levy, Castle, Virdivov, et al. 2023 (8)

- 109 FAST exams and 6,608 images (from 3-6 second clips using curvilinear probe) from a level 1 trauma center
- Four convolutional neural network architecture models were trained and evaluated to determine adequate tests, as well as positive FAST results
- Positivity and adequacy of the AI model were 94% and 97% accurate, respectively

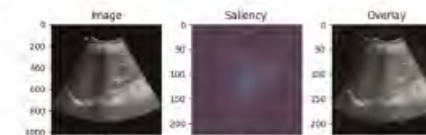


Figure 2. Saliency map for adequate data set, representative images from the test cohort.

The availability of sonographers, or trained ultrasound-trained providers may be limited in rural hospitals. The addition of a technological adjunct could ensure BOTH adequate image acquisition and interpretation in FAST exams.

Conclusion

Rurality poses many challenges when it comes to the management of trauma patients and the resources they require. Although many groups are training deep learning models using large datasets from urban hospitals, the resulting algorithms and decision-support can perhaps be incorporated into the electronic medical record to assist rural hospital employees. Rather than operate autonomously, artificial intelligence can be a valuable tool in helping rural healthcare providers make informed decisions to improve patient outcomes and reduce hospital burden.

References

1. Shekhar AC, Lewis BA. State-Level Variability in the Number of Level 1 Trauma Centers Per Capita in the United States. *Ann Emerg Med.* 2023 Oct;62(4):530-531. doi: 10.1016/j.annemergmed.2023.05.006. PMID: 37797974.
2. Part 4: America's Incomplete Trauma System. ACC. Accessed March 18, 2024. <https://www.facs.org/quality-programs/trauma/systems/trauma-series/part-iv/>
3. Stonko DP, Gallamini-Segal OD, Fischer PE, Dennis BM. Artificial intelligence in trauma systems. *Surgery.* 2021 Jun;169(6):1295-1299. doi: 10.1016/j.surg.2020.07.038. Epub 2020 Sep 10. PMID: 32921479.
4. Dennis BM, Stonko DP, Callcut RA, et al. Artificial neural networks can predict trauma volume and acuity regardless of center size and geography: A multicenter study. *J Trauma Acute Care Surg.* 2019;87(1):181-187. doi:10.1097/TA.0000000000003203
5. Nederpelt C, Mokhtari A, Asler G, et al. Development of a field artificial intelligence triage tool. Confidence in the prediction of shock, transfusion, and definitive surgical therapy in patients with truncal gunshot wounds. *Journal of Trauma and Acute Care Surgery.* 2021; 90(16): 1094-1098. doi: 10.1097/TA.0000000000003135.
6. Shahi N, Shahi AE, Phillips R, Shirak G, Bernard D, Moulton SL. Decision-making in pediatric blunt solid organ injury: A deep learning approach to predict massive transfusion, need for operative management, and mortality rate. *J Pediatr Surg.* 2021;56(2):376-384. doi:10.1016/j.jpedsurg.2020.10.021
7. El-Rashidy N, Sedic A, Siam Al, Ali ZH. An efficient edge/cloud medical system for rapid detection of level of consciousness in emergency medicine based on explainable machine learning models. *Neural Comput Appl.* 2023;35(14):10605-10716. doi:10.1007/s00521-023-06256-w
8. Levy BE, Castle JI, Virdivov A, et al. Artificial intelligence evaluation of focused assessment with sonography in trauma. *J Trauma Acute Care Surg.* 2023;95(5):706-712. doi:10.1097/TA.0000000000004021

Practice-Based Research & QI: Engaging Preceptors and Sites For Improving Clinical Practice & Outcomes

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Overview

Role of practice-based research, QI

Opportunity for clinicians and health professions students to participate in or conduct clinical site-specific projects, impacting:

Workforce development

- Statewide and national workforce shortages across multiple disciplines¹
- Training health professions students is a critical part of workforce development
- Participation shown to impact recruitment and retention²

Interprofessional collaboration

- Engagement of preceptors and stakeholders in professional development

Improving outcomes

- Projects aim to improve quality or access to care, maximizing limited site resources and mitigating health disparities. Opportunity to incorporate EBP.

Consider the Quintuple Aim³



Practice-Based Projects

Plan-Do-Study-Act (PDSA) Model⁴



Academic Resources

- Health professions students frequently have opportunity to participate in or conduct projects at clinical sites.
- Doctor of Nursing Practice (DNP) NP student requirement

Patient Benefits

- Opportunity to evaluate practice patterns, incorporate evidence into practice, improve patient care

Leverage academic resources of doctoral programs for design, implementation, evaluation.

Quality Improvement vs Research

- QI tailored to needs of site, resources
- Ask and answer locally clinically relevant question
- Systems approach
- Design for site feasibility, sustainability

Process

Collaboration

- Engagement of site stakeholders
- ID problem and project purpose
- Project Design

Preceptor role

- Consultant
- Member, Doctoral Committee

Approvals

- Site approval for project
- University IRB – ensure human subjects protection

Implementation

- Tailored to site, considering feasibility, sustainability

Dissemination

- Executive summary of findings and future recommendations provided to site

Project Examples

Provider education - Evidence-based practice

- Chronic disease management, Mental health
- Advance directives
- Implement screening tools - depression, sleep apnea

Patient education - tools

- Chronic disease management – DM, HTN
- Prevention

Program evaluation

- Transitional care, telehealth programs

Practicing Nurse Leadership Skills: Teaching Leadership Excellence for Advanced Practice (LEAP)

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Purpose

- Measure the effectiveness of LEAP educational experience
- Foster leader skills for Advanced Practice Registered Nursing (APRN) PMHNP Students

Background

- Increased demand for integrative health care
- Poises APRN to be critical clinical leaders
- Fosters preparation to lead integrative discussion
- Practice shared decision making
- Current leadership courses may not be enough
- Practice opportunities for conflict management skills

Theoretical Framework

The Information Motivation Behavioral Skills Theory (IMB)



Tenets of the Theoretical Framework

- Skill practice is an essential component of behavior change
- Provides further information on motivation and context
 - Hypothesis: APN students actively practicing leadership behavioral skills in a clinical conflict scenario may increase clinical leadership confidence.



Methods

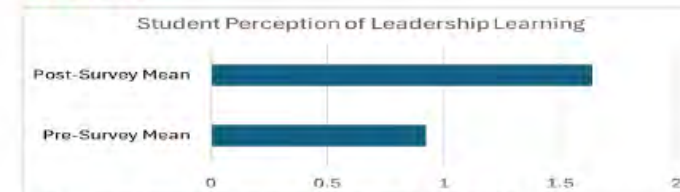
- Evidence-based conflict resolution exercise
- IRB consented APRN students participate
- Participate in a virtual multidisciplinary meeting with conflict
- Assume assigned roles
- APRN students facilitate group to address conflict arising
- Different scenarios used per APRN specialty

Measurement

- Post-pre survey for the APRN students on a Likert Scale
- Measurement domains:
 - Affect on attitude, behavior, and direction
 - Confidence to accomplish optimal outcome
 - Ability to delegate tasks
 - Relationship building, communication strategies, and self efficacy
 - Motivation skills and group consensus facilitation abilities
 - Overall group leadership



Results



Pearson Correlation Co-Efficient: 0.8710651

Implications

- Implementing is both feasible and effective in improving the leadership potential of novice APNs
- Strong positive correlation
- Support translation of research into practice

References

