IMPROVING EDUCATION RELATED TO BACTERIAL INFECTIONS IN RURAL COMMUNITIES IN ARIZONA

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INTRODUCTION

- Rural communities have limited resources
- Family Medicine Clinic
  - Strives to limit travel and expenses for patients
- DNP Scholarly Project
  - Improve patient education
  - Promote overall community health

BACKGROUND & SIGNIFICANCE

- Significant lack of funding/resources in community
- Primary Prevention
  - Education and preventative care
  - Promote community health within clinic setting
- Focus: Bacterial infections
  - Self-care at home & Medication compliance

(NCCH, 2017; Matho et al., 2018)

BACKGROUND & SIGNIFICANCE

- Potential positive effects of improved education
  - Prevent infection epidemics
  - Promote appropriate antibiotic stewardship
  - Prevent unnecessary ER visits

(Matho et al., 2018; Weeks, 2018; Warren & Smalley, 2014)

BACKGROUND & SIGNIFICANCE

- Potential positive effects of improved education
  - Prevent recurrent bacterial infections
  - Prevent complications
  - Reduce unnecessary medical and travel expenses

(Matho et al., 2018; Weeks, 2018; Warren & Smalley, 2014)

NEEDS ASSESSMENT

- NCCH Community Needs Assessment
  - Declining census
  - High incidence of poverty
- SWOT Analysis
  - Negative attributes
  - Positive attributes

(NCCH, 2017; Belova, 2018; Weeks, 2018)

PROBLEM STATEMENT

- Residing in rural setting poses health risks
- Potential for further decrease in resources

(CDC, 2017; NCCH, 2017; Shang et al., 2018)

PROBLEM STATEMENT

- Proposed solution focuses on education
  - Limit spread of infection
  - Improve treatment compliance
  - Improve self-care at home
  - Promote preventative care

(CDC, 2017; NCCH, 2017; Shang et al., 2018)

PROJECT AIMS & OBJECTIVES

- Improve education on bacterial infections
  - Disease process
  - Antibiotic therapy
  - Preventative measures

(CDC, 2017; Warren & Smalley, 2014)

PROJECT AIMS & OBJECTIVES

- Objectives
  - Patient verbalizes preparedness and increased knowledge
  - No necessity for additional care for diagnosed infection

(CDC, 2017; Warren & Smalley, 2014)

CLINICAL QUESTION/PICOT

- In adult patients diagnosed with bacterial infections, how does improving patient education regarding antibiotic therapy, disease process, and preventative measures for infection control affect the need for additional care or treatment/medication (patient outcome) within two weeks of initiating treatment?

CONGRUENCE WITH ORGANIZATIONAL STRATEGIC PLAN

- Organizational Mission
  - Provide access to care close to home
  - Promote healthier communities

(NCCH, 2017)

CONGRUENCE WITH ORGANIZATIONAL STRATEGIC PLAN

- DNP Project Goals
  - Improve patient health outcomes
  - Improve patient health habits
  - Promote infection control

SYNTHESIS OF EVIDENCE

- CINAHL and GOOGLE Scholar
- Keywords
- Exclusion criteria
- Year range 2014-2019
- Relevance of information
- 36 articles evaluated, 20 selected

SYNTHESIS OF EVIDENCE

- EPIDEMIC
  - Limited access & healthcare provider shortage
  - Decreased financial means
  - Further distance from healthcare facilities

(CDC, 2017; Awuku, 2017; Thomas et al., (2017); Warren & Smalley, 2014; Weeks, 2014; Belova, 2018; McDanel, (2014)

SYNTHESIS OF EVIDENCE

- EPIDEMIC
  - Higher prevalence of chronic illnesses
  - Poor lifestyle choices & higher risk for mortality
  - Further distance from healthcare & noncompliance

(CDC, 2017; Awuku, 2017; Thomas et al., (2017); Warren & Smalley, 2014; Weeks, 2014; Belova, 2018; McDanel, (2014)

SYNTHESIS OF EVIDENCE

- INFECTION CONCENTRATION
  - Prevalence of infectious disease
    - Respiratory, Urinary, Skin, Gastrointestinal
  - Inappropriate antibiotic use
  - Lack of follow-up
  - Lag-time with diagnostics and lab results

(NCCH, 2017; Thomas et al., 2017; Shang et al., 2018; Woodfine & Walraven, 2019; Leong et al., 2014; Awuku et al., 2017; Weeks, 2018; Fiore et al., 2017; Duncan, 2019)

SYNTHESIS OF EVIDENCE

- HELPFUL INTERVENTIONS
  - Increased leadership, education, and preventative care
  - Proper use of antibiotics
  - PPE, waste management

(Sarma & Ahmed, 2017; Ward, 2017; Dick, Larson, & Stone, 2018; Shang et al., 2018; CDC, 2017)

SYNTHESIS OF EVIDENCE

- ANTIBIOTIC USE
  - Urinary Infections
    - Individualized care- comorbidities, cultures, presenting symptoms
    - Explore other alternatives to antibiotics
    - Rapid diagnosis and treatment within clinic

(Duncan, 2019; Price et al., 2016; Ugur et al., 2019; Basheer, 2018; Collins, 2019; Fiore et al., 2017; Matho et al.; 2018)

SYNTHESIS OF EVIDENCE

- ANTIBIOTIC USE
  - Respiratory Infections
    - Pose a challenge for accurate diagnosis and treatment
    - Viral versus bacterial
    - Issues with patients demanding antibiotics
    - Standard vs. High-dose Amoxicillin

(Duncan, 2019; Price et al., 2016; Ugur et al., 2019; Basheer, 2018; Collins, 2019; Fiore et al., 2017; Matho et al.; 2018)

CONCEPTUAL OR THEORETICAL FRAMEWORK

- Health Belief model
  - Individual health related to personal perception
  - Five key aspects to changing health behaviors
  - Useful for development of plan on improving education
  - Motivates others to take positive action

(Resource for Adolescent Pregnancy Prevention, 2019; Rural Health Information Hub, 2019)

PROJECT DESIGN

- DESIGN
  - Quality Improvement project
    - Aims to achieve measurable outcomes
    - Increase patient satisfaction and outcomes
    - Uses team approach and patient focus
  - Data incorporated from specified healthcare clinic

(Quality Improvement, 2017)

PROJECT DESIGN

- SETTING
  - Southeastern Arizona
  - Rural healthcare clinic
  - Community population is 759
  - Approximately eight patients seen on clinic days

(Point Homes, 2019, F. Grill, personal communication, September 17, 2019)

PROJECT DESIGN

- POPULATION
  - Adults ages 18 and older
  - Female and Males
  - Diagnosis of bacterial infection requiring antibiotics
  - Patients seen at the clinic
  - Must meet inclusion criteria and provide verbal consent

(Thomas et al., 2017; NCCH, 2017)

DATA COLLECTION TOOLS

- Pre-educational questionnaire
- Post-educational questionnaire
- 2-week Follow-up Evaluation Form

(See Appendices A, B, C)

DATA ANALYSIS

- SPSS descriptive statistics
- Data tables
- Data Classifications
  - Type of infection, gender, and age
- Data Differentiation
  - Antibiotic completion, additional care, symptom resolution

PROJECT PLAN

- PROCESS
  - Determine participant eligibility
  - Verbal Consent
  - Pre and Post-Educational Questionnaires
  - Education verbally and with written material
  - Follow up phone call two weeks after visit

PROJECT PLAN

- OUTCOMES TO BE MEASURED
  - Retainment of education
  - Necessity for additional care
  - Completion of antibiotics
  - Resolution of symptoms

PROJECT PLAN

- EVALUATION AND SUSTAINABILITY PLAN
  - Inclusion criteria and process is clear
  - Data collection for 3 months once weekly
  - Expect 40-50 patients to participate
  - Consistency and preparedness are essential

PROJECT PLAN

- EVALUATION AND SUSTAINABILITY PLAN
  - Potential barriers
    - Patients decline to participate
    - Failed attempts to reach patients after visit
    - Unforeseeable circumstances

ETHICAL ISSUES

- Project requires interaction with human subjects
- Informed consent required
- Letter of permission from organization
- Committee on the Use of Human Subjects in Research
- No ethical concerns exist regarding methods

(Bradley University, 2019)

ORGANIZATIONAL ASSESSMENT

- Open-minded to change
- Desire continual improvement of outcomes
- Small clinic with strong support
- More time allotted per patient
- Enthusiastic for project implementation

(F. Grill, personal communication, September 17, 2019).

COST FACTORS

- Production of brochures
- Printing of data collection tools
  - Paper, Ink, printer
- Computer with Excel program
- Estimated cost 80-100 dollars

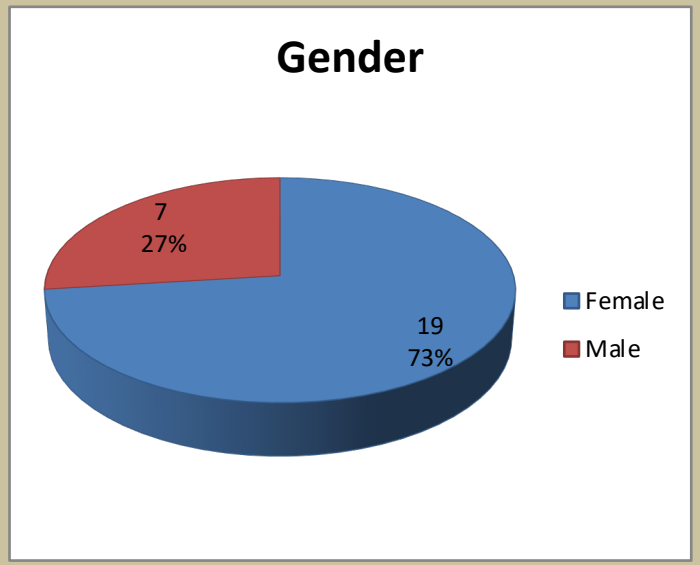
RESULTS

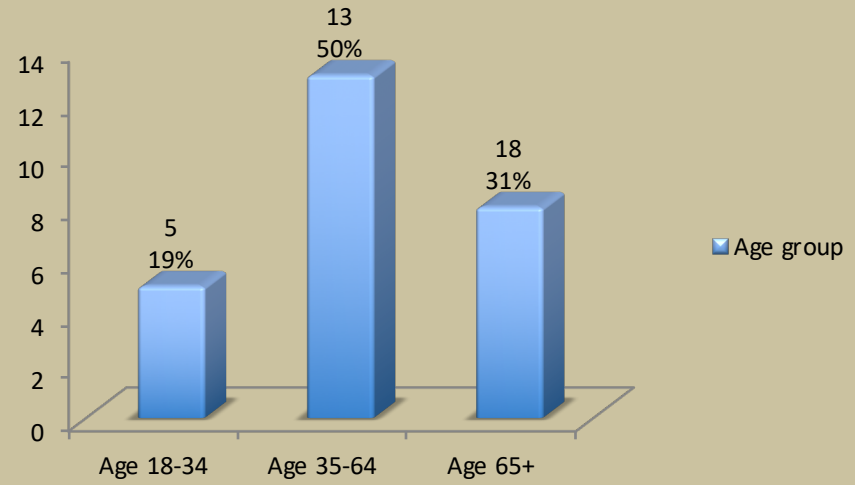
- Analysis of Implementation Process
  - No modifications made to planned interventions
  - Provisions for confidentiality maintained
  - Appropriate data collection tools
  - Project interventions feasible despite time constraints
  - Identified keys to success for project

RESULTS

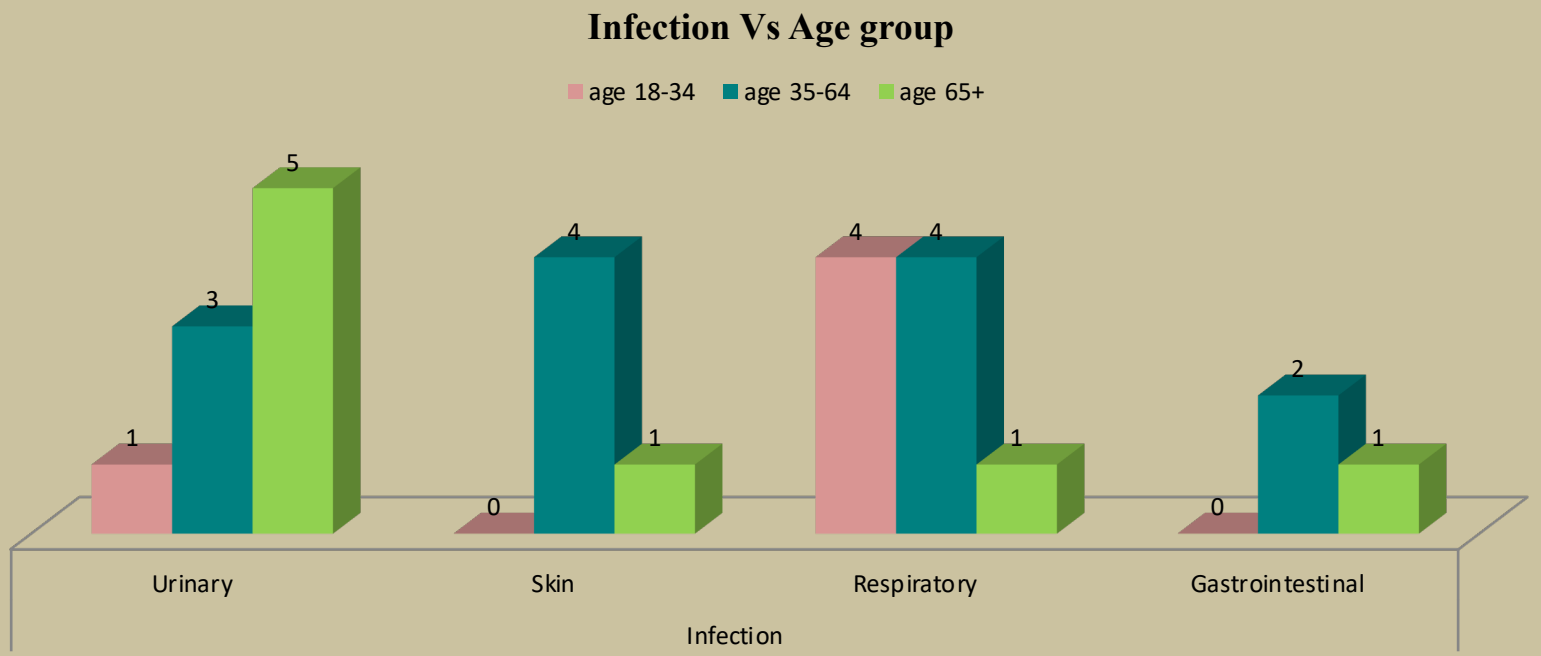
- Analysis of Project Outcome Data
  - 26 participants
  - Analysis includes demographics
    - Age, gender, infection type
  - 88.5% Successful patient outcome

GENDER AND AGE GROUPS

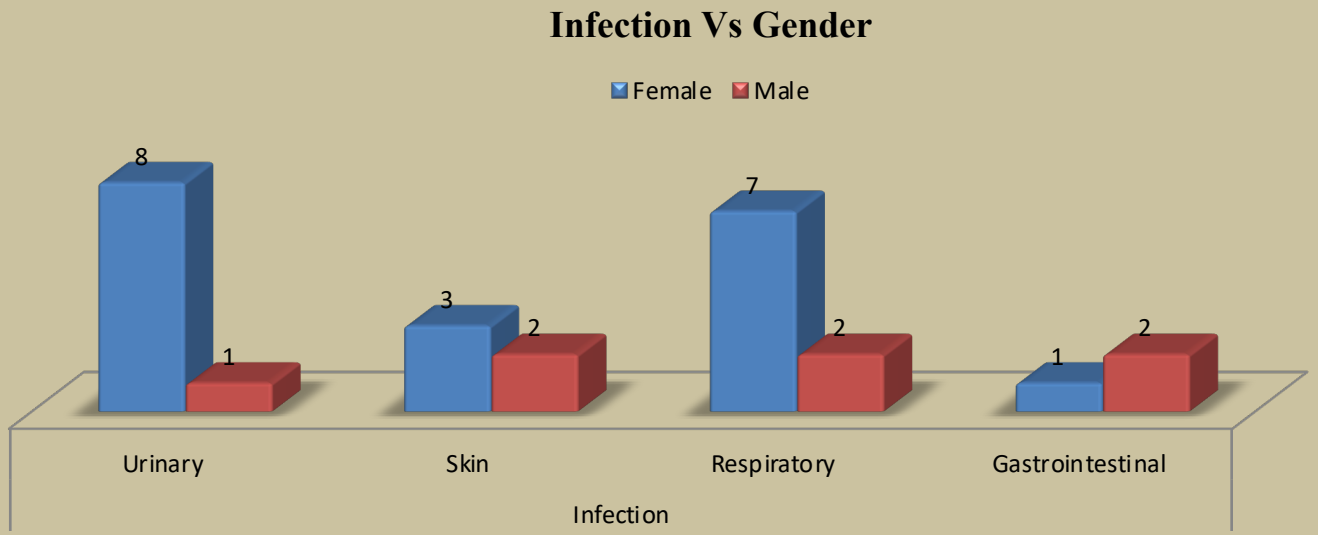




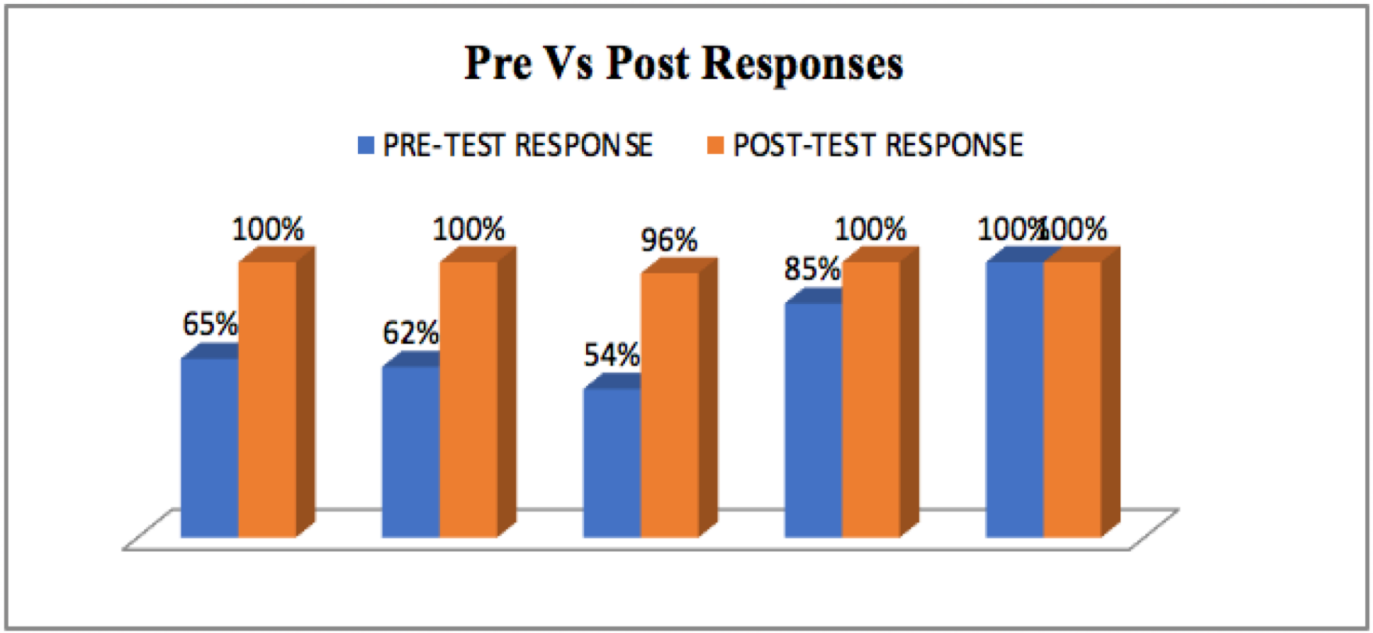
INFECTION VS AGE GROUP



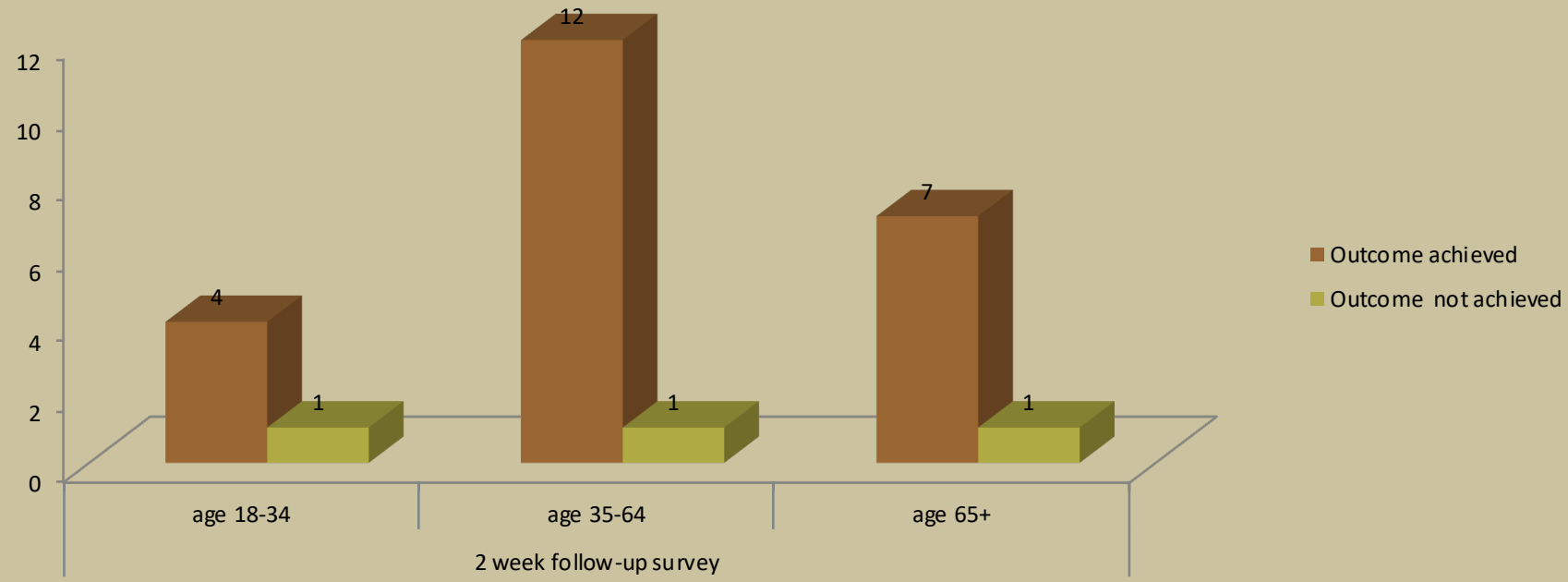
INFECTION VS GENDER



CORRECT RESPONSES PRE VS POST



2-WEEK FOLLOW-UP EVALUATION



RESULTS

- Analysis of Project Outcome Data
  - Relationships
    - Negative outcomes in 3 patients
      - Incomplete antibiotic therapy (2)
      - Necessary treatment for ongoing symptom (1)
  - Patients verbalized interest in education provided

SUMMARY OF FINDINGS AND OUTCOMES LINKED TO SMART OBJECTIVES

- Findings
  - Objectives evaluated for SMART criteria
    - Post-education scores significantly higher than pre-scores
    - Resulted in positive outcomes in 88.5% participants
      - Retainment of knowledge
      - Resolution of symptoms
      - No additional care necessity

LIMITATIONS OR DEVIATIONS FROM PLAN

- Global Pandemic COVID-19
  - Lower than expected participant number
  - Time frame extended from 10 to 14 weeks

IMPLICATIONS OF RESULTS

- Practice
- Future Research
- Nursing
- Health Policy

VALUE OF PROJECT

- Improved education can impact patient outcomes
- Nurses serve role as educators in community
- Interventions must be intentional
  - Allotted time, reference material availability, follow-up
- Competency in DNP Essentials
- Dissemination plan and attainment of goals

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