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Screening Initiative for Non-Stroke Geriatric Inpatients

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Abstract

Current literature reveals a need for improved depression screening efforts among inpatient geriatrics. This population is at higher risk for severe depression, suicidal ideations, poorer health outcomes related to decreased compliance to healthcare regimens, and increased healthcare costs. Current best practice involves the utilization of the Geriatric Depression Scale-Short Form (GDS-SF), a 15-question yes or no answer screening tool. While not diagnostic, the tool has established validity and reliability testing. The GDS-SF should not be used on subsets of the population diagnosed with stroke, dementia or delirium.

The purpose of this project was to develop a protocol for implementation of the GDS-SF screening tool on an inpatient neuroscience unit in a 344-bed Midwestern hospital. Both qualitative and quantitative results of implementation were analyzed, revealing barriers and facilitators to further organizational scale-up of use of this protocol to additional units. The protocol was revised based on these findings, with the revised protocol delivered to organizational leadership for continued organizational implementation efforts.

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Executive Summary

The purpose of this practice project was to improve the care of inpatient geriatrics through the development and implementation of a depression screening protocol. The United States Preventive Task Force (2016) currently recommends screening inpatient geriatrics without a diagnosis of stroke, delirium, or dementia utilizing the evidenced-based Geriatric Depression Scale-Short Form screening tool.

An organizational assessment of a Midwestern hospital revealed a need for improved screening efforts in the form of a carefully researched and developed protocol, which was accomplished during this quality improvement initiative. The protocol was then implemented on a Neuroscience Unit with support from the multidisciplinary team. Throughout implementation of the protocol, continuous evaluation guided by the Plan, Do, Study, Act model for continuous improvement was performed (Melnyk & Fineout-Overholt, 2015).

Revisions to the original protocol and education were drafted, with a final product with recommendations for further implementation presented to key stakeholders within the organization. Barriers to implementation included those of time, concurrent educational demands required of a fast-paced healthcare organization, workflow demands, and knowledge gaps. To overcome these barriers, recommendations for future scale up included identification of champions to facilitate implementation, educational offerings available through multiple modalities, and a system for reinforcement of protocol use.

Introduction and Background

Depression remains one of the most frequent psychiatric syndromes experienced by the geriatric population (Brown, Raue, & Halpert, 2009). Depressed geriatric patients experience increased rates of hospital readmissions, increased costs during hospitalization totaling an additional $49.70 per day over their non-depressed counterparts (Bula, Wietlisbach, Burnand, & Yersin, 2001; Heisel, Glett, Duberstein, & Lyness, 2005). Depressed geriatric patients also experience more physical disability and overall poorer health status, resulting in poorer recovery outcomes (Heidenblut & Zank, 2014). In those individuals experiencing multiple health concerns, including chronic pain such as low back pain, the risk of depression increases, as does the risk for suicidal intent (Kanzler, Bryan, McGeary, & Morrow, 2012). Increased risk of suicide that is often more lethal than that of their depressed but younger counterparts is a major issue in this population (Heisel, Glett, Duberstein, & Lyness, 2005).

Despite roughly 40% of hospitalized patients aged 65 years and older experiencing symptoms of depression, screening efforts remain sadly lacking (Brown et al., 2009; Heidenblut & Zank, 2014). It is estimated that only 28%-56% of all geriatric inpatients with depression are identified with proper screening initiatives (Heidenblut & Zank, 2014). With well-researched screening tools available specific to this population, much work for improvement on

implementation of routine screening for depression in the inpatient setting is needed.

According to the United States Preventive Services Task Force (2016), the geriatric inpatient population should be screened utilizing the Geriatric Depression Scale – Short Form (GDS-SF), but only if there are mental health resources available for possible referrals if needed (see Appendix A). The GDS-SF is a 15-question, yes or no answer screening tool developed by Sheikh and Yesavage in 1996 (as cited in Heisel et al., 2005) as a shortened version of the original 30-question Geriatric Depression Scale tool. The shortened version was developed to address concerns of fatigue and lack of concentration prevalent in the depressed geriatric population, as well as to offer improved feasibility of administration in a busy clinical setting (Heisel et al., 2005).

Instituting routine screening for depression in the geriatric inpatient population utilizing an evidence-based tool such as the GDS-SF has the potential to impact patient outcomes. Interventions based on findings from improved screening measures may lead to interventions to improve patient motivation and involvement in individualized plans of care; ultimately leading to reduced healthcare expenditures experienced by this population (Bass, Attix, Phillips-Bute, & Monk, 2008; Chiang, Green, & Cox, 2009). These interventions based on routine depression screenings may lead to improved physical functioning and basic healthcare maintenance efforts (Bass et al., 2008). Screening the geriatric inpatient population

for depression has the potential to lead to positive changes in both healthcare and health status.

Problem Statement

Considering the availability of resources available to the care provider of geriatric inpatients, this project aimed to determine how routine screening for depression and appropriate referrals could be implemented for this population. Furthermore, in hospitalized patients who are greater than or equal to 65 years of age with a non-stroke diagnosis and no concurrent dementia or delirium, how do screening measures utilizing the evidence-based GDS-SF implemented by bedside registered nurses (RNs) improve the identification of potentially depressed elders with appropriate referrals as indicated? The problem this project aimed to address is the lack of routine screening for depression in the geriatric inpatient population utilizing an evidence-based screening tool with subsequent referrals if indicated for the purpose of improving the quality of care provided to this population.

Evidence-Based Initiative

The Rapid Critical Appraisal Checklist (see Appendix B) was utilized in the performance of a comprehensive literature review and synthesis to evaluate the current best practice for screening inpatient elders for depression (Melnyk & Fineout-Overholt, 2015). Search terms utilized for gathering evidence were:

Geriatric Depression Scale Short Form AND Screening AND Inpatient. Criteria for evaluation of suitability were developed to guide the search.

Inclusion criteria and exclusion criteria were developed prior to searching in order to aid the evaluation of the literature to determine which studies should undergo further quality assessment. Interventions primarily in acute or subacute settings, subjects aged 65 years and older, and use of the GDS-SF as the primary tool were inclusion criteria while exclusion criteria consisted of subjects with the diagnosis of delirium, dementia or stroke, subjects under the age of 65 years, and studies that focused on the outpatient setting.

After searches of the databases CINAHL, Ovid, MEDLINE, PsychINFO, Cochrane Library, and Web of Knowledge for studies and articles fitting set inclusion and exclusion criteria, results were evaluated using the Rapid Critical Appraisal Checklist to evaluate validity, quality of results, applicability to practice, credibility, and generalizability of findings (Melnyk & Fineout-Overholt, 2015). Studies were then rated according to the Rating System for the Hierarchy of Evidence (see Appendix C) with articles having low ratings indicating low quality being excluded (Melnyk & Fineout-Overholt, 2015). Included in the final review and synthesis were two evidence-based practice guidelines, eight quantitative cross-sectional investigations, one randomized clinical trial, and one meta-analysis (see Appendix D).

Results of the synthesis of these publications reveals that use of the GDS-SF is the best practice for screening inpatients aged 65 years or older without stroke, dementia or delirium for signs of depression (Harper, 2015). The GDS-SF is a screening tool that is valid, reliable, and demonstrates high sensitivity while being specific enough to not have a high number of false positives. Use of the tool in various settings by different providers results in scores that are consistent with findings from more in-depth assessments performed by skilled psychiatrists (Harper, 2015).

The GDS-SF is indicated as a screening tool only and not a diagnostic indicator of depression. Positive scores of 6 or greater strongly suggest the presence of mild to moderate depression and require a referral to an experienced professional such as a social worker or a psychiatrist for further diagnostic evaluation. Additionally, the GDS-SF is not the best tool to use on the patient population suffering from dementia, delirium, or stroke. Patients with these conditions often have difficulty completing the GDS-SF and have results that are inaccurately skewed, lessening the validity of the screening tool (Harper, 2015). In this population, the Patient Health Questionnaire (PHQ-9) is best practice for screening for depression (Hollender, 2014).

After the carefully constructed literature review was completed, findings were evaluated and synthesized for use as a guide for practice change. Findings included evidence that the GDS-SF remains best practice for screening geriatric

inpatients for depression, and scores of 6 or greater should result in a referral to a mental healthcare provider for further evaluation. Evidence that the GDS-SF should not be used in those with stroke, delirium, or dementia reinforce the need to implement screenings carefully so as to avoid inaccurate results. The GDS-SF screening tool is found to be easy to use, quick to administer, has findings that are consistent even with different administrators and among different subsets of the population, and results in findings similar to those from more in-depth assessments performed by skilled psychiatrists.

Conceptual Model

Since the evidence analyzed in the literature review and synthesis for best practice in the screening of geriatric inpatients indicated use of the GDS-SF, the next step in the creation of this project was to conceptualize the development, implementation, and evaluation of changing practice to screening for depression. The Model for Evidence-Based Practice Change by Rosswurm and Larrabee (1999) was used to guide the conceptualization of the project (see Appendix E). The 6 steps to evidence-based practice change included in the model are: Assessment for the need for change in practice, location of the best evidence, critical analysis of the evidence, designing the practice change, implementing and evaluating the change,

and integration and maintenance of the change in practice (Melnyk & Fineout-Overholt, 2015).

Assessment for the need for change in practice in this project included identifying and meeting with key stakeholders, collection of national data on geriatric depression as well as information on the current status of screening geriatric inpatients within a 344-bed community-based hospital located in Grand Rapids, Michigan. Collection of data from within the organization revealed a need for a depression screening protocol on the inpatient Neuroscience Unit, with input and guidance from an exemplar Geriatric Unit that were actively utilizing the tool. As identification and critical analysis of the best evidence was completed in the literature review and synthesis, the next step was the development of the practice change in the form of development of a protocol.

During this protocol development, an educational program was developed and a white paper was drafted to assist in the visualization of the proposed practice change. This white paper was disseminated along with the educational program during business meetings with leadership and key stakeholders. This paper resulted in a brief presentation that included a visual for the protocol for screening implementation on the Neuroscience Unit (see Appendix F). The protocol was developed with input from leadership and key stakeholders from both the Neuroscience and Geriatric Units, in partnership with the literature on how best to

utilize the GDS-SF. Plans were then made for implementation of the screening protocol.

Implementation was designed to occur after RNs had received education on geriatric depression that included topics such as the national and local impact of geriatric depression, current state of screening within the organization, current best practice for screening, availability of and how to use the GDS-SF tool, and opportunity for practice change. The plan for implementation included a kickoff party on both day and night shifts, with emails to remind RNs that the screening initiative had become active.

The project developer rounded on both day and night shift RNs, providing immediate feedback. Daily rounds were also to ensure success of implementation through daily reminders until the protocol became part of the daily workflow, and to provide quick and easy access for RNs to answers to questions and support as needed throughout this practice change initiative. Weekly data collection occured with the assistance of clinical informaticists; weekly reports were sent to the key leadership on the Neuroscience Unit and the leadership of the organization. This evaluation would continue through sustainment efforts with the assistance of a clinical nurse specialist on the Neuroscience unit.

During the final step in the Model for Evidence-Based Change, the project developer disseminated findings of the implementation period to the entire Neuroscience Unit during celebrations on both day and night shifts (Melnyk &

Fineout-Overholt, 2015; Rosswurm & Larrabee, 1999). These celebrations reinforced the practice change as well as recognized the hard work and dedication to best practice evidenced during the implementation period.

Also guiding the development, implementation, and integration of a depression screening initiative for non-stroke inpatient geriatrics was the Plan, Do, Study Act model for continuous improvement (United States Department of Health and Human Services Health Resources and Service Administration [HRSA], 2011). This model for quality improvement allows for project developers to set specific goals, establish outcomes measures appropriate to the planned change, and to evaluate continuously, combating any unforeseen barriers. Utilization of this model allows for the project developer to intervene at any time during the project to make adjustments and improvements that improve the likelihood of success (HRSA, 2011).

Review of the plan for development, implementation, and integration of a depression screening initiative for inpatient geriatrics utilizing the Model for Evidence-Based Change began with meetings with key stakeholders and evaluation of national and local data (Melnyk & Fineout-Overholt, 2015; Rosswurm & Larrabee, 1999). Step 2 and 3 included collection of and careful analysis and synthesis of the current evidence in the literature, with step 4 consisting of the development of the actual proposal and plan for implementation. Step 5 included the actual implementation followed by step 6's integration into practice and plans for

sustainability as the change in practice became standard. Throughout the process, the project developer kept an electronic journal detailing qualitative and quantitative data for the purpose of conducting formative evaluations to aid in the evaluation and revision of the protocol during implementation (Stetler et al., 2006). Partnering the journal findings with use of the Plan, Do, Study Act model was meant to allow for fluid continuous evaluation and improvement of the project (HRSA, 2011).

Need and Feasibility Assessment of the Organization

In order to assess the need for change in practice and the feasibility of implementation for the developed project, an organizational assessment was performed with the guidance of a Strengths, Weaknesses, Opportunities, and Threats (SWOT) evaluation as well as use of the Causal Model of Organizational Performance and Change (Burke & Litwin, 1992; Melnyk & Fineout-Overholt, 2015). The Causal Model was utilized in addition to the SWOT analysis as it allowed for a more in-depth analysis of organizational culture and individual characteristics that may aid or halt organizational change projects, with a focus on transactional and transformational change agents (Burke & Litwin, 1992).

Results of the SWOT analysis revealed a culture supportive of innovation with leadership that fostered innovative ideas and provided grant opportunities for funding of these ideas. The organization was comprised of outstanding medical staff that was found to be both motivated and innovative. A mix of newer and more

experienced staff including specialists in geriatric care proved to be vital assets within the organization. Weaknesses demonstrated during this evaluation included staffing shortages that resulted in increased workloads and time restrictions. Opportunities included having the GDS-SF already available within the electronic health record, with a unit-specific protocol already developed within the Geriatric Unit. Threats identified included decreasing unit budgets leading to increased pressure to take heavier caseloads, as well as the previously discussed limitations to patient-care time.

Assessment findings from the Causal Model of Organizational Performance and Change (Burke & Litwin, 1992) again revealed an organization open to implementation, but that sustainment of any implementation would require many levels of support. Change efforts based on proven best-evidence were embraced and lead to improved outcomes for the communities served. Colleagues reported sharing this vision, and demonstrated attempts to embody this in everyday practice. RNs, while working to support the mission and values of the organization, required frequent feedback and support to sustain improvement efforts over time. Frequent communication of process and outcomes indicators including both successes and failures was determined to be the key to successful implementation and sustainability.

Project Plan

As discussed previously, development of the project was based on the Model for Evidence-Based Practice Change (Melnyk & Fineout-Overholt, 2015). The Plan, Do, Study, Act Model (PDSA) was also used to further assist in continuous evaluation and improvement of this project (Melnyk & Fineout-Overholt, 2015; Rosswurm & Larrabee, 1999; HRSA, 2011). The next sections will review the purpose of the project with objectives, type of project, the setting and resources utilized, the design and implementation, along with measurements for outcomes indicators and ethics and human subjects protection.

Purpose of Project with Objectives

The main purpose of this project was to improve the care of the geriatric inpatient through the implementation of a screening initiative to identify potentially depressed geriatric inpatients in order to improve the quality of care and adherence to treatment. The implementation of this project included four main objectives: 1) improve RN mental health knowledge and attitudes through an educational intervention; 2) improve screening efforts of hospitalized patients meeting designated criteria using the GDS-SF by RNs within the first 24 hours of admission; 3) assure appropriate referrals based on GDS-SF score; and, 4) evaluate a change in RN clinical practices.

Type of Project

This initiative was a quality improvement project aimed to demonstrate an evidence-based clinical practice change. According to HRSA (2011), quality improvement projects are those "systematic and continuous actions that lead to measureable improvement in healthcare services and the health status of targeted patient groups" and are often screening initiatives (p. 1). These initiatives usually look at systems and processes in order to improve the quality of care provided to patients.

The project aimed to improve the care of geriatric inpatients through a screening for depression initiative. Aiming to improve the health of a targeted population through a change process in a systematic way, this project could be called a quality improvement initiative. The development of the quality improvement project was developed using conceptual models along with formative evaluation, which assisted in ensuring the change was both efficient and effective (Stetler et al., 2006).

Setting and Resources

The project implementation occurred in a 344-bed acute care hospital in Grand Rapids Michigan. The identified scale-up unit was a Neuroscience Unit staffed by 43 RNs rotating in shifts of 8- and 12-hour durations. The unit is identified as acuity adaptable, caring for patients on a spectrum from intermediate to general medical care needs. On a typical shift, RNs were charged with the care of 2 to 6 patients, resulting in approximately 10 RNs working during any given shift. The unit

was identified as the most appropriate for implementation as it had the second-highest volume of stable geriatric inpatients after the Geriatric Unit noted to already utilize GDS-SF screening.

Resources necessary and available for this project to have a successful implementation included engaged leadership, RN acceptance and willingness to support change in practice, and technology platforms for education and communication. As discussed previously, the tool was already available within the electronic medical record. Leadership allowed for the project developer to communicate with RNs regularly through email and at scheduled unit meetings. Online educational platforms were already utilized for educating the RNs for monthly assigned competencies, with access given to the project developer to provide additional education as needed.

Design for the Evidence-Based Initiative

Utilizing the Plan, Do, Study, Act model to assist with project design and implementation allowed for continuous evaluation and modification of the initiative to overcome barriers (HRSA, 2011; Melnyk & Fineout-Overholt, 2015). As the outcomes of this project were utilized to make recommendations to the organizational leadership for hospital-wide implementation, careful planning and implementation including modifications utilizing this model proved vital. The design for the project included the development of 4 action plans: 1) Review the

model unit; 2) provide education to the Neuroscience Unit RNs; 3) implement and monitor; and 4) analyze findings.

To prepare for the initiation of the scale up quality improvement project, the Geriatric Unit was studied as an exemplar unit due to consistent utilization of the GDS-SF. As this unit had an expectation of screening without a detailed protocol of who and when to screen, a detailed refined protocol was drafted (see Appendix F). Structured interviews with RNs on this unit occurred to inform the design and implementation of this protocol, and to identify any unforeseen barriers.

For example, delays or omission of screenings occurred when an RN from a different unit was "pulled" to the Geriatric Unit to fill a staffing need. This was due to a knowledge deficit by the "pulled" RN. The refined protocol addressed this by having the charge RN be responsible for screening these patients should this situation arise.

This protocol was then evaluated by key leadership on the Neuroscience Unit for assessment of feasibility and review of completeness. Plans were discussed for education to the RNs, which occurred in two separate educational sessions in December of 2015, with review of the content in two additional educational sessions in February of 2016. An online educational model was developed for organization-wide use based on input from RNs on the Neuroscience Unit; the educational module was ultimately assigned to the Neuroscience Unit RNs for a refresher of information during implementation.

Implementation occurred on April 5th, 2016, with two kickoff parties with the project developer rounding for 6 hours on day shift and 6 hours on night shift with snacks and beverages provided. Table tents with the protocol algorithm (see Appendix F) on one side and a screen-shot of the GDS-SF on the other were placed at each charting station to assist with implementation. The clinical nurse specialist and charge nurse from each shift agreed to assist with identification of possible subjects and to seek out RNs assigned to their care to assist with screening efforts.

Week 1 data (see Appendix J) revealed that screenings were not being consistently completed; thus the online education was assigned as a refresher to the Neuroscience Unit RNs. For those RNs identified by leadership as having completed the screening, a small treat was given and unit-wide appreciation of that individual was provided in a week's end email and on the unit's staff appreciation board. Weekly data was compiled and disseminated for the support of implementation and sustainability through the unit's quality indicators board located in the unit breakroom. The project developer continued to round on both day and night shifts daily, providing all of the RNs with access to phone and email contact for continuous support. Upon completion of the implementation, data was analyzed and with outcomes being discussed shortly.

Participants

Participants in the original educational initiative included 46 RNs based on the Neuroscience Unit, with 43 RNs included during implementation due to

attrition. Also included were two social workers as it was anticipated that the change in practice would result in additional referrals based on increased RN utilization of the GDS-SF. All inpatients on the Neuroscience Unit with the organization standard signed consent for treatment and aged 65 years or older without the diagnosis of stroke, dementia, delirium, aphasia, and with the ability to complete the GDS-SF screening either in English or with the use of a medically certified translator were included in the project implementation.

Measurement: Sources of Data and Tools

The GDS-SF was the primary tool used in this project (see Appendix A). The electronic medical record was the primary source of data, with clinical informatics specialist providing data on age, diagnosis, GDS-SF completion and score, as well as if a referral to social work occurred and if social work wrote a note in the patient's electronic chart (see Appendix J). Data were also collected from an online post-implementation survey (see Appendix G) as well as from the project developer's daily reflective journal (see Appendix K).

Steps for implementation of Project, Including Timeline

Planning:

1. Approval of Proposal by Project Advisor and Project Team: March 18th, 2016
2. Approval from IRB: April 4th, 2016

Doing:

2. Catered kickoff event for day and night shift for day 1 of implementation, completed by project developer: April 5th, 2016.
3. Week 1 data analysis with report back to Neuroscience Unit leadership and RNs, completed by project developer with assistance from informatics department. All RNs who completed the screening provided with personalized edible reward and emailed recognition from project developer and unit manager: April 12th, 2016.
4. Implementation of additional electronic education for Neuroscience Unit RNs by project developer: April 12th, 2016.
5. Week 2 data analysis with report back to Neuroscience Unit leadership and RNs, emailed recognition for utilizing the GDS-SF by manager and project developer, personalized edible reward to RNs utilizing GDS-SF distributed by project developer: April 22nd, 2016.
6. Recognition for RNs completing online educational module in the form of personalized edible rewards distributed by project developer: April 19th, 2016.
7. Implementation wrap-up celebration catered by project developer to celebrate success and hard work by unit RNs and leadership, completed by projected developer: April 25rd, 2016, with an additional celebration on April 29th, 2016.

Studying:

8. Analysis of data including data provided by the information technology department, post-implementation surveys, online educational module post-tests, and project developer's daily reflective journal. Statistics included a run chart analysis and thematic analysis, completed by the project developer: April 29th, 2016.

Act:

9. Revise protocol and education based on findings from study phase by project developer: April 29th, 2016.
10. Dissemination of findings to Neuroscience Unit RNs and leadership planned for scheduled staff meetings by project developer: June, 2016.
11. Dissemination with findings and recommendations for further organizational implementation utilizing revised protocol and education to organizational nursing practice and standards council by project developer: May, 2016.

Ethics and Human Subjects Protection

As explored previously, this project was a quality improvement initiative. As such, it was found to be exempt from a full Institutional Review Board (IRB) review. The project was deemed to be a clinical quality improvement initiative and not research by both the collegiate IRB and the organizational IRB (see Appendices H & I).

Project Outcomes

To review, the goals of this project were four-fold: 1) to improve RN mental health knowledge and attitudes; 2) improve screening for depression among hospitalized patients meeting designated criteria; 3) ensure those with a GDS-SF score of 6 or greater receivee a mental health referral; 4) and change RN clinical practices. This was to be accomplished through education regarding geriatric depression, implementation of a carefully developed and researched protocol for screening, and continuous support and reinforcement from the project developer. Conceptualization, implementation, evaluation, and sustainability efforts were guided by both the Model for Evidence-Based Practice Change and the Plan, Do, Study, Act Model for Continuous Improvement (HRSA, 2016; Melnyk & Fineout-Overholt, 2015; Rosswurm & Larrabee, 1999).

Objective 1

Objective 1, improved RN mental health knowledge and attitudes, was evaluated utilizing post-test data from online education as well as from post-implementation RN surveys (see Appendix G). RNs reported the tool was easy to administer, short in duration with an average time to administer ranging from 1 to 10 minutes, and allowed for improved identification of potentially depressed patients that was quantifiable in nature (see Appendix K). To date, no RNs have offered any insight as to what went well, what could have gone better, or offered any additional comments. On reflection, this lack of written response rather than

multiple choice response may be due to a time constraint. Overall, RNs reported use of the GDS-SF was purposeful and useful for practice in the care of inpatient geriatrics.

Objective 2

The second objective, improvement of depression screening efforts among the inpatient geriatric population, was evaluated utilizing descriptive statistical evaluation of data collected during implementation (see Appendix J). Of the 47 patients eligible for screening during implementation, 33 patients were screened for a total compliance rate of 81.9% over 3 weeks. This is an increase from 0% during the two weeks prior to implementation. Evaluation of these data for trends and special versus common cause variation occurred through use of a run chart (see Appendix M) (Carey & Lloyd, 2001).

Special-cause variation refers to those variations from baseline data that are a result of "irregular or unnatural causes that are not inherent in a process" (Carey & Lloyd, 2001, p. 49). These special cause variations indicate an unstable process that cannot be successful and appear as a saw-tooth pattern in a run chart. Conversely, common-cause variation is the expected variation when implementing a new process and appears as rare, small groups of data below or above the median line of a run chart. As all changes in a process or practice incur variations or unexpected results, those incurring special-cause variation are doomed to fail while wasting resources whereas those with common-cause variation can be evaluated

and improved for success. Use of a run chart allows for evaluation of data to determine if special- or common-cause variations exist. A run chart is the dynamic display of data over time, with a minimum of 15 data points for a more accurate and effective analysis (Carey & Lloyd, 2001).

Variations in data points were noted to occur at the initiation of the screening protocol, at the addition of identification to interdisciplinary rounds, assignment of an online educational module, and at thematic analysis of barriers. Due to the fact that this process was in the early stages of implementation, the process was still unstable and so common cause versus special cause variation cannot be clearly delineated (Carey & Lloyd, 2001). Each change in data points was identified with changes developed to the overall process to improve adherence to the protocol.

The first change made and noted on the run chart was the addition of identification of eligible patients during morning interdisciplinary rounds. As each unit participates in these weekday morning rounds consisting of multidisciplinary team members, the sustainability plan for the Neuroscience Unit included having these team members assist in the identification of patients eligible to be screened. The interdisciplinary team was enthusiastic and willing to add identification of possible patients to screen to their workload, especially after noting the possible patients eligible for screening up to day three had ranged from only 0 to 7, which did not increase the workload of the team by more than a few minutes. The

screening of these patients utilizing the GDS-SF remained the responsibility of the RN caring for the identified patient. Adding additional team members in the identification of eligible patients for screening was anticipated to increase the adherence to the implemented protocol through decreasing time and effort required by the RN to evaluate for eligibility for screening.

The second change made and noted on the run chart was the assignment of an online educational model to refresh the knowledge of all Neuroscience Unit RNs. These RNs had received education on 2 prior instances during mandatory staff meetings. Those RNs not in attendance had been met with one-on-one to provide the missed education and refresher information. As themes of knowledge gaps were arising in the project developer's daily journal, as well as a decrease in adherence to the screening protocol, it was decided to assign the online module to the RNs as a refresher course.

This online educational model was the same education received in staff meetings, but was digitized for future use by the organization and edited to address questions from the original presentation. Assigning the education as an online module rather than emailing it strengthened compliance with education as failure to do so resulted in a negative notation on annual evaluations. The project developer reinforced completion by providing personalized edible rewards to each RN as education was completed. This education was assigned with the purpose of increasing awareness and adherence to the implemented screening protocol.

The third decrease in adherence noted on the run chart resulted in an evaluation of the project developer's daily journal to establish a root cause for the dip in screenings. Themes were analyzed to determine barriers to adherence to the protocol. RNs noted the pace of the day was quite rushed, with patient turnover of up to 3 new patients per RN during their shift, making workflow the biggest barrier to screening. No other causes for delay in screening were identified, and data demonstrated a return to 100% adherence to the screening protocol after this date. As a result, no interventions were made at this point. Adherence to the screening protocol remained at 100% for the next 7 days evaluated.

Objective 3

To evaluate the assurance of referral should the GDS-SF score be 6 or greater, data were analyzed for those individuals with scores of 6 or greater (see Appendix J). Only 2 of the 47 patients screened had scores requiring referral, with both receiving the necessary referral. Upon further evaluation by the social worker, one of the two patients receiving a referral was determined to be recently suicidal. This individual received appropriate interventions under the guidance of the social work team.

Objective 4

Evaluation of a change in RN clinical practice occurred with use of a run chart as well as through thematic analysis of the project developer's daily journal (see Appendices K, L, & M). The data demonstrate a definitive change in practice from

day 1 of implementation through day 21. Day 1 of data collection demonstrated 20% compliance to the protocol, with no new patients available on day 2. Day 3 of data collection was the lowest compliance day with only 14.2% screened. After addition of identification of possible patients requiring screening to interdisciplinary rounds as a form of reinforcement, and assignment of mandatory review of education, compliance skyrocketed to 100% and remained there for days 10 through 13, and again on day 15 and lasting through the remainder of data collection to day 21. It is important to note that 21 days of evaluation were included in this evaluation, with more monitoring, auditing, and feedback required to ensure long-term success.

Per the journal entries of the project developer, less and less reinforcement and answering of questions was required, with no questions being asked after day 10. The journal entries demonstrated that the project developer was a familiar face with RNs making statements such as “I don’t have any today” or “Mine are all screened” rather than just greeting with a “hello”. As a result, the last 11 days of implementation focused on sustainability measures which will be discussed shortly.

Revisiting the data and associated objectives, it is clear that the implementation of a protocol for screening inpatient non-stroke geriatrics for depression was successful for the limited time that auditing was conducted. Development and implementation of the protocol resulted in improved screening efforts that also ensured appropriate and timely referrals to social work as indicated. This was clearly demonstrated through the identification of a potentially

depressed patient who was determined to have been recently suicidal. Implementation of this protocol also resulted in a change in RN clinical practice, evidenced by the sustained 100% screening results discussed previously.

Implications for practice

Conceptualization, implementation, evaluation and sustainability efforts for this protocol for screening inpatient non-stroke geriatrics for depression resulted in many implications for practice. This project was a valuable experience as it brought with it many successes and the identification of a number of barriers. Many opportunities were presented not only for the project developer but also for the field of nursing as a whole within the organization. The relationship between patient outcomes and depression is clear, demonstrating the importance of a protocol of this nature.

Successes

During development and implementation, many successes were experienced. Leadership as well as RNs were quite open to efforts to improve RN practice to align with current evidence. Additionally, these individuals were immensely supportive of innovation and were quite helpful in directing the project developer towards those individuals who would prove to be vital project champions. These individuals were overheard during shift report describing how easy the protocol was to interpret and how quick the GDS-SF was to administer.

Having the interdisciplinary team volunteer to assist with protocol implementation was also an important success, adding an additional opportunity for potential patients to be identified. As this process remains relatively new, approaching identification of patients from interdisciplinary team standpoint assists in reminding RNs to screen until the protocol becomes standard practice.

Perhaps the greatest success came from the social work department. During conceptualization and organizational assessment, meetings with key stakeholders including the chief nursing officer resulted in a plan to collect data for the social work department in order to build a business case for an additional social worker. During implementation, the organization created a position for an additional social worker without data from implementation. Further discussions revealed that data provided during conceptualization meetings and dissemination of the organizational assessment findings influenced the early creation of an additional position.

Additional successes included having an exemplar unit from which to model, and having the GDS-SF already available in the electronic medical record. Having predecessors who implemented the tool digitally meant that structured data collection was more feasible, with electronic data collection available quite readily. Ultimately, it was the individuals of the organization who were responsible for the majority of successes experienced during the projects conceptualization and implementation.

Barriers

The largest barrier occurred during the time between RN education and protocol implementation. In a fast-paced clinical setting such as an inpatient Neuroscience Unit, there are many initiatives and educational requirements that occur every month. During the time between the first educational session and implementation of the protocol, RNs on this unit were required to demonstrate their annual competencies on a variety of organizationally identified subjects, with this unit also being required to demonstrate numerous stroke education hours.

Over half of the RNs on this unit also had to renew their RN licenses, meaning any outstanding educational requirements set forth by the state board had to be met before the end of March of 2016. Simply put, these RNs were experiencing education fatigue and needed a refresher on the information covered in order to make implementation successful. To overcome this in future implementations, it is recommended to have education occur no longer than 1 month prior to implementation of the protocol.

Another barrier experienced was in the form of a new social worker to the unit verbalizing to RNs to stop screening as the social work department was not equipped to handle referrals for depression. This occurred on day 3 of implementation, and may be a contributory reason for this being the day of lowest adherence. Prior to implementation, meetings occurred with the project developer and social workers for both the Neuroscience Unit and the Geriatric Unit to

determine the most appropriate way to implement screening and address GDS-SF scores of 6 or greater.

As this social worker was new, she was not present at the meetings and had no experience in getting a referral for depression. The social work department manager identified a mentor for this social worker and scheduled a meeting to discuss how to handle referrals. RNs received verbal and email verification that the protocol remained active, and social work was, in fact, equipped to care for these individuals. Having a champion RN proved to be vital as this individual called the project developer regarding this situation, allowing for same-day resolution.

Minor barriers identified in thematic analysis (see Appendix K) of the project developer's daily journal included verbalizations of barriers to adherence or implementation of the protocol. Barrier themes included knowledge gaps, workflow issues, and outside interference. Interference came in the form of the social work situation described previously. Workflow was primarily being too busy or having surgical patients who did not have any admissions paperwork to complete resulting in forgetting that this documentation is done once inpatient. Knowledge gaps included forgetting the protocol was active, stating that the need for screening was not passed on in shift report, or thinking that the screening was someone else's responsibility.

Surgical patients were included in both the knowledge gap and the workflow themes as these patients were not considered 'inpatient' until in their room on the

unit. The screening protocol is for inpatients and so the GDS-SF would not be completed by the surgery RN. However, there is little to no admission paperwork for these patients as the surgery RNs complete this prior to admission, resulting in a change in standard workflow for the RN.

Barriers to data evaluation included missing and incomplete data. The electronic record had to be re-queried to assess for completeness, with the Neuroscience Unit secretary identifying any additional admissions meeting the age and diagnosis criteria from the unit log book. A total of 3 additional patients were identified, the charts of these identified patients were reviewed by unit leadership to evaluate for adherence to the protocol. Revision of the protocol to include the unit secretary in identification of possible eligibility for screening would be recommended.

Additional missing data came in the form of incomplete evaluations. Only 18 out of 43 RNs, or 41.9%, responded to the post-implementation survey (see Appendix L), a similar response to the post-education test. Allowing more time for completion would likely increase response rates. As responses are meant to be anonymous, individual recognition for completion was not conducted. However, offering a threshold for recognition would be appropriate. For example, cafeteria vouchers for all RNs could be awarded if the unit response rate met or exceeded 85%. Monies for this would need to be identified in the unit budget on further scale up initiatives.

As a response, the project developer included the need for responses in weekly emails, as well verbally in daily rounds. Treats were brought every day and night shift for two weeks to encourage responses Data from the unit manager revealed the response rate for this survey (41.9%) was actually higher than the typical 15-20% response rate the unit experienced. Unfortunately, the timing of the post-implementation survey aligned with an annual organizational safety and engagement survey, suggesting RNs might be suffering survey fatigue.

In reflection, the primary barrier experienced during implementation was time. Too long of a span of time between education and implementation, as well as not enough time to complete surveys were two main time barriers. Having a careful timeline prior to implementation that accounts for initial education as well as data collection is a plausible solution. Including interdisciplinary team members such as the unit secretary in data collection and patient identification efforts should be considered as it was found to be highly useful. Incentivizing voluntary activities such as completion of surveys and feedback forms is essential to adequate response rates, as well as careful planning to avoid survey fatigue.

Sustainability

Sustainability of this protocol relies heavily on colleague participation. Having an individual accountable for data collection with frequent reports to leadership and RNs is vital. Having the data continuously fresh and visible

encourages RNs to seek out opportunities to screen patients and be adherent to the protocol. It is proposed that each unit designate one person to be this data collector; ideally, the clinical nurse leader who is responsible for outcomes improvement initiatives. Auditing with timely feedback is an evidence-based strategy to ensure effective implementatioin, and is recommended highly for further scale-up within the organization (Dulko, 2007).

During this implementation, the interdisciplinary team was vital to improvement in screening rates. Including the interdisciplinary teams on each unit will be highly beneficial to implementation and sustainability as each unit implements this protocol. Having this team address screening opportunities also assists the RNs in identification, which assists in overcoming the barriers of knowledge gaps and workflow issues. Including the unit secretary can assist with identifying eligible patients throughout the day, and not just on weekday morning rounds. The project developer recommends including the interdisciplinary team including the clinical nurse leader, social worker, pharmacist, unit secretary, and case managers among others in the educational initiative prior to implementation in order to optimize the possibility of assistance from this team.

Finally, ensuring that each unit's educator maintains responsibility for providing education on the protocol to each new colleague would be necessary to ensure long-term sustainability. As the Neuroscience Unit is not unique to having many newer staff members as evidenced during the organizational assessment,

providing and ensuring completion of education regarding geriatric depression is highly important. Additionally, the education and staff development leadership must be willing to evaluate the education being provided for accuracy and to ensure only the most current best evidence is being utilized.

Including all members of the healthcare team is vital to sustainment of the protocol for screening for depression in non-stroke geriatric inpatients. Including the interdisciplinary rounding team can assist with identification of eligible patients, as well as address identified barriers to implementation. Having someone designated as the data collector and disseminator, such as the clinical nurse leader, can assist in keeping RNs aware of the initiative. Additionally, having educators assigned to disseminate educational offerings to new colleagues and to keep educational offerings current is fundamental to sustainment efforts.

Relationship to Healthcare Trends

As the population ages, there is increased emphasis on prevention and fiscal responsibility in healthcare. The geriatric population has the highest rates of depression and suicide over any other population, with suicide attempts being more lethal than those from different age groups (Bula et al., 2001; Heisel et al., 2005). With this in mind, there is a movement to intervene *prior* to suicidality, ideally with depression screenings, identification, and appropriate treatment (Devasagayam & Clark, 2008).

Healthcare trends are moving to identify depressed geriatric inpatients and provide prompt consultation to mental health specialists in order to address adherence to care plans, the disproportionate healthcare costs experienced by depressed patients, avoidable disability, and overall poor health outcomes (Heidenblut & Zank, 2014; Devasagayam & Clark, 2008). This project aligns with healthcare initiatives to address the mental health needs of the aging population earlier through screening efforts.

Limitations

Limitations of this project include staff motivation and evaluation of long-term sustainability, among others. Continued colleague motivation, especially RNs experiencing heavier workloads and longer hours due to staffing needs, may be difficult to sustain. As an influx of new colleagues join the organization, there may be a change in the support for adherence to the protocol. Additionally, this project looked only at implementation and not long-term sustainability. More data over time are needed to determine the long-term sustainability of this protocol.

Essentials of Doctoral Education for Advanced Nursing Practice

According to the American Association of Colleges of Nursing (AACN, 2006), there are eight essentials required for doctoral education for advance nursing practice (see Appedix O). Fulfillment of these essentials demonstrates that the student is uniquely prepared to perform as an innovative leader in the transformation of evidence into practice. These essentials each require specific

competencies be met by the student in order to be considered competent as a practice-focused Doctor of Nursing Practice (DNP). Achieved competencies ensure rigor, emphasize the immersion experience, and ensure a DNP final project that demonstrates an "integrative practice experience" (AACN, 2006, p. 3).

In the conceptualization, implementation, and evaluation of this project, the project developer addressed parts of each of the essentials. Scientific underpinnings for practice incorporated the use of the Model for Evidence-Based Practice Change to explore geriatric depression as a phenomenon and to develop a new protocol for practice (AACN, 2006; Melnyk & Fineout-Overholt, 2015). Organizational and systems leadership for quality improvement was perhaps the most highly addressed essential as this project evaluated and changed healthcare delivery models as they relate to the care of the geriatric patient. This required working in diverse organizational settings with various colleagues to develop and implement a practice change.

The next essential, clinical scholarship and analytical methods for evidence-based practice, was met initially during the literature review and synthesis as analytic methods to rigorously and critically appraise the literature on geriatric depression were used. Analysis of data from practice as well as the design for the evidence-based intervention to address the gaps noted in the data from practice fulfilled the essential. As the project relied heavily on technology not just for data collection and the screening tool itself, but also for educational initiatives, the fourth

essential, or information systems and technology and patient care technology for the improvement and transformation of healthcare, was also utilized throughout implementation.

The fifth essential, healthcare policy for advocacy in healthcare, was addressed through the development of a protocol that ensured ethical policies were in place for the care of the geriatric patient. Development of this policy required educating the interdisciplinary team to advocate for both the patient population and the nursing profession in order to potentially impact patient outcomes. These efforts also met the requirements for the sixth essential, interprofessional collaboration for improving patient and population health outcomes. As population health was heavily addressed in this project, with the focus being on geriatric inpatients who may be depressed, a particularly vulnerable population, essential seven was also focused on as it addresses clinical prevention and population health for improving the nation's health. The scope of the project remained local, but development was influenced heavily by epidemiological and biostatistical data collected from evidence across the nation.

The eighth and final essential, advanced nursing practice, was addressed through implementation. Having designed and implemented this project, the project developer was also charged with maintaining interdisciplinary relationships to ensure the project was sustainable. These relationships ensured that evidence-based care was being provided for the population of focus, facilitating optimal

patient outcomes. Implementation also required guiding nurses, many with less than one year of experience, to demonstrate excellence in nursing practice. Utilizing conceptual models, the project developer was able to develop a protocol that incorporated best practices into an organizational protocol to address population health and potentially impact patient outcomes (AACN, 2006).

Dissemination of Outcomes

Daily feedback was provided to the Neuroscience Unit RNs on percentages of eligible patients screened as identified by the informatics technology department and key leadership on the unit. The unit manager emailed findings each week to all staff including members of the interdisciplinary team. A plan to provide the unit with a brief poster presentation on the project is planned for the month of June, 2016, during scheduled mandatory unit staff meetings.

Based on feedback from RNs and data evaluation from this implementation, the digital educational module was edited and submitted for addition into the organization's online educational platform to be used during scaling-up of depression screening efforts organization-wide. A meeting with the organization's practice and standards council is tentatively set for May, 2016, to evaluate adding the protocol to the organization's standards of care. Finally, a scholarly poster was developed (see Appendix M) with abstracts submitted to national and local organizations for presentation with the support of the organization.

Conclusion

Without implementation of an evidence-based screening protocol for possible depression in the geriatric patient, a particularly vulnerable group of patients is at higher risk for increased length of stay, increased cost of care per day, poorer outcomes overall, and, most concerning, risk for suicide. During this implementation, these risks became evident when a patient admitted for an innocuous reason was found to not be at risk for mental health during the initial admission profile. Appearing withdrawn and having other somatic symptoms indicative of depression, the RN utilized the GDS-SF to quantify suspicion of depression.

Upon further analysis utilizing the GDS-SF according to the protocol developed for this project, the patient was found to be at high risk for severe depression. After meeting with a social worker and psychiatrist, it was determined this patient was not only severely depressed, but actively suicidal with a plan. An interdisciplinary care plan was developed with the patient, ensuring safety and improved outcomes. Use of the GDS-SF by the RN potentially resulted in a saved life and decreased patient suffering.

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Appendix A

Geriatric Depression Scale: Short Form

Choose the best answer for how you have felt over the past week:

1. Are you basically satisfied with your life? YES/**NO**
2. Have you dropped many of your activities and interests? **YES/**NO
3. Do you feel that your life is empty? **YES**/NO
4. Do you often get bored? **YES/**NO
5. Are you in good spirits most of the time? YES/**NO**
6. Are you afraid that something bad is going to happen to you? **YES**/NO
7. Do you feel happy most of the time? YES/**NO**
8. Do you often feel helpless? **YES**/NO
9. Do you prefer to stay at home, rather than going out and doing new things?

   YES/NO
10. Do you feel you have more problems with memory than most? **YES**/NO
11. Do you think it is wonderful to be alive now? **YES**/NO
12. Do you feel pretty worthless the way you are now? **YES/**NO
13. Do you feel full of energy? YES/**NO**
14. Do you feel that your situation is hopeless? **YES/**NO
15. Do you think that most people are better off than you are? **YES/**NO
16.

Answers in **bold** indicate depression. Score 1 point for each bolded answer.

A score of > 5 points is suggestive of depression and should warrant a follow-up comprehensive assessment

A score of ≥ 10 points is almost always indicative of depression

Adapted with permission from Kurlowicz, L., & Greenberg, S.A. (2007). Try this: The Geriatric Depression Scale (GDS). *The Hartford Institute for Geriatric Nursing, New York University, College of Nursing*. Retrieved from http://www.stanford.edu/~yesavage/GDS.html

Appendix B

The Rapid Critical Appraisal Checklists

Rapid Critical Appraisal Checklist for Evidence-Based Clinical Practice Guidelines

Credibility

1. Who were the guideline developers?
2. Were the developers representative of key stakeholders in this specialty (interdisciplinary)?
3. Who funded the guideline development?
4. Were any of the guidelines developers funded researchers of the reviewed studies?
5. Did the team have a valid development strategy?
6. Was an explicit (how decisions were made), sensible and impartial process used to identify, select, and combine evidence?
7. Did its developers carry out a comprehensive, reproducible literature review within the past 12 months of its publication/revision?
8. Were all important options and outcomes considered?
9. Is each recommendation in the guideline tagged by the level/strength of evidence upon which it is based and linked with the scientific evidence?
10. Do the guidelines make explicit recommendations (reflecting value judgments about outcomes)?
11. Has the guideline been subjected to peer review and testing?

Applicability/Generizability

12. Is the intent of use provided (e.g., national, regional, local)?
13. Are the recommendations clinically relevant?
14. Will the recommendations help me in caring for my patients?
15. Are the recommendations practical/feasible (e.g., resources-people and equipment-available)?
16. Are the recommendations a major variation from current practice?
17. Can the outcomes be measured through standard care?

Rapid Critical Appraisal Checklist for Systematic Reviews of Clinical Intervention Studies

I. Are the Results of the Review Valid?

A. Are the studies contained in the review randomized controlled trials?

B. Does the review include a detailed description of the search strategy to find all relevant studies?
C. Does the review describe how validity of the individual studies was assessed (e.g., methodological quality, including the use of random assignment to study groups and complete follow-up of the subjects)?
D. Were the results consistent across studies?
E. Were individual patient data or aggregate data used in the analysis?

2. What Were the Results?
   A. How large is the intervention or treatment effect (OR, RR, effect size, level of significance)?
   B. How precise is the intervention or treatment (CI)?
3. Will the Results Assist Me in Caring for My Patients?
   A. Are my patients similar to the ones included in the review?
   B. Is it feasible to implement the findings in my practice setting?
   C. Were all clinically important outcomes considered, including risks and benefits of treatment?
   D. What is my clinical assessment of the patient and are there any contraindications or circumstances that would inhibit me from implementing the treatment?
   E. What are my patient's and his or her family's preferences and values about the treatment that is under consideration?

Rapid Critical Appraisal Checklist for Cohort Studies

I. Are the Results of the Study Valid?
   A. Was there a representative and well-defined sample of participants at a similar point in the course of the disease?
   B. Was follow-up sufficiently long and complete?
   C. Were objective and unbiased outcome criteria used?
   D. Did the analysis adjust for important prognostic risk factors and confounding variables?
2. What Are the Results?
   A. What is the magnitude of the relationship between predictors (i.e., prognostic indicators) and targeted outcome?
   B. How likely is the outcome event(s) in a specified period of time?
   C. How precise are the study estimates?
3. Will the Results Help Me in Caring for My Patients?
   A. Were the study patients similar to my own?
   B. Will the results lead directly to selecting or avoiding therapy?
   C. Are the results useful for reassuring or counseling patients?

Adapted with permission from Melnyk, B.M., & Fineout-Overholt, E. (2015).

Evidence-based practice in nursing and healthcare: A guide to best practice

(3rd ed.). Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins.

Appendix C

Rating System for Hierarchy of Evidence

- Level I: Evidence from a systematic review or meta-analysis of all relevant randomized controlled trials (RCTs), or evidence-based clinical practice guidelines based on systematic reviews of RCTs
- Level II: Evidence obtained from at least one well-designed RCT
- Level III: Evidence obtained from well-designed controlled trials without randomization
- Level IV: Evidence from well-designed case-control and cohort studies
- Level V: Evidence from systematic reviews of descriptive and qualitative studies
- Level VI: Evidence from a single descriptive or qualitative study
- Level VII: Evidence from the opinion of authorities and/or reports of expert committees

Adapted with permission from Melnyk, B.M., & Fineout-Overholt, E. (2015). *Evidence-based practice in nursing and healthcare: A guide to best practice* (3rd ed.). Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins.

Appendix D

Literature Evaluation and Synthesis

Citation	**Design/ Method**	**Sample/ Setting**	**Major Variable**	**Outcome Measures**	**Data Analysis**	**Findings**	**Level and Quality of Evidence**
Brown, Raue, & Halpert (2009)	EBP Guideline	Ger Variety	Depression	GDS scores 6 or above indicate possibility of depression	Patient scores: <6=risk of depression ≥6=possible depression	-EBP guideline developed from reviews of RCT's Screening increases: mental health referrals; recognition of depression; detection, treatment, and course of depression.	Level I
Greenberg, S.A.	EBP Guideline	Ger Variety	Depression	GDS –SF scores	Patient scores: 5-8 mild depression 9-11 moderate depression 12-15 severe depression	-EBP guideline developed from review of RCT's -Requires little training to administer -Useful in variety of settings -Available in the public domain, multiple languages -Reliable and Valid (Cronback alpha 0.749)	Level I
Mitchell, Bird, Rizzo, & Meader (2009)	MA	Ger Variety	Depression	Validity of GDS	Bayesian Meta-analysis	-Inpatient sensitivity of 84.3%, specificity of 73.8%	Level I
Chiang, Green, & Cox (2009)	RCT	Ger/ ALF ILF SNF Home	Depression	Scale dimensionality, reliability Invariance, Scale continuity, Diagnostic use	Rasch model	-GDS-SF adequate screening tool for elders with depression regardless of residential setting	Level II

Citation	Design/ Method	Sample/ Setting	Major Variable	Outcome Measures	Data Analysis	Findings	Level and Quality of Evidence
Jee & Lee (2013)	CS	Ger AC	Depression	MMSE GDS-SF	Logistical Regression	-Significant differences between +/- GDS-SF screenings in "gender, state of health, ability to perform daily activities, level of self-respect, and satisfaction with life" p. 1448	Level IV
Incalzi, Cesari, Pedone, & Carbonin (2003)	CS	Ger AC	Depression	Reliability Sensitivity & Specificity Construct Validity	Factor Analysis	-Results of GDS-SF are generalizable to the elderly medical inpatient population	Level IV
Bula, Wietlisbach, Burnand, & Yersin (2001)	CS	Ger AC	Depression Outcomes	Hospital Readmission Costs per day	Bivariate, Multivariate Cox Proportional Hazard Regression Analysis	-GDS score ≥6 associated with increased readmission rates, nursing home placement, and increased healthcare utilization costs.	Level IV
Wall, Lichtenber, Macneill, Walsh, & Deshpande (1999)	CS	Ger SAR	Depression	GDS GDS-SF Diagnostic Validity	Test of Means Correlation Coefficients	-Results of GDS and GDS-SF highly correlated with r=0.88 indicating the two forms found similar results. -Sensitivity and Specificity were maintained in the shortened form.	Level IV

Citation	Design/ Method	Sample/ Setting	Major Variable	Outcome Measures	Data Analysis	Findings	Level and Quality of Evidence
Bass, Attix, Phillips-Bute, & Monk (2008)	CS	Young (18-39) Middle (40-59) Ger (60+)	Depression	GDS-SF BDI	Spearman Correlations	-Statistically significant correlation between BDI and GDS-SF results indicating high validity of the GDS-SF as a screening tool.	Level IV
Shah, Phongsathorn, Bielawska, & Katona (1996)	CS	Ger SAR SNF	Depression	BAS GDS GDS-SF	Sensitivity & Specificity Positive/negative Predictive Value	GDS-SF has high sensitivity and specificity in the target population making it an ideal screening tool as it is brief and inexpensive while maintaining the integrity of a depression screening tool.	Level IV
Aikman & Oehlert (2000)	CS	Ger SNF	Depression	GDS GDS-SF	Correlation coefficient	GDS-SF results correlate with those from the longer GDS in the same patient, indicating high reliability, internal consistency. The GDS-SF is an acceptable tool for screening the target population.	Level IV
Pomeroy, Clark, & Philp (2001)	CS	Ger SAR		AMT GDS GDS-SF GDS-4 MHI-1	ROC curve	The GDS-15 is both sensitive and specific, so identifies a similar portion of the population as the longer GDS, yet is specific enough not to cause increases in false positives.	Level IV

Notes:

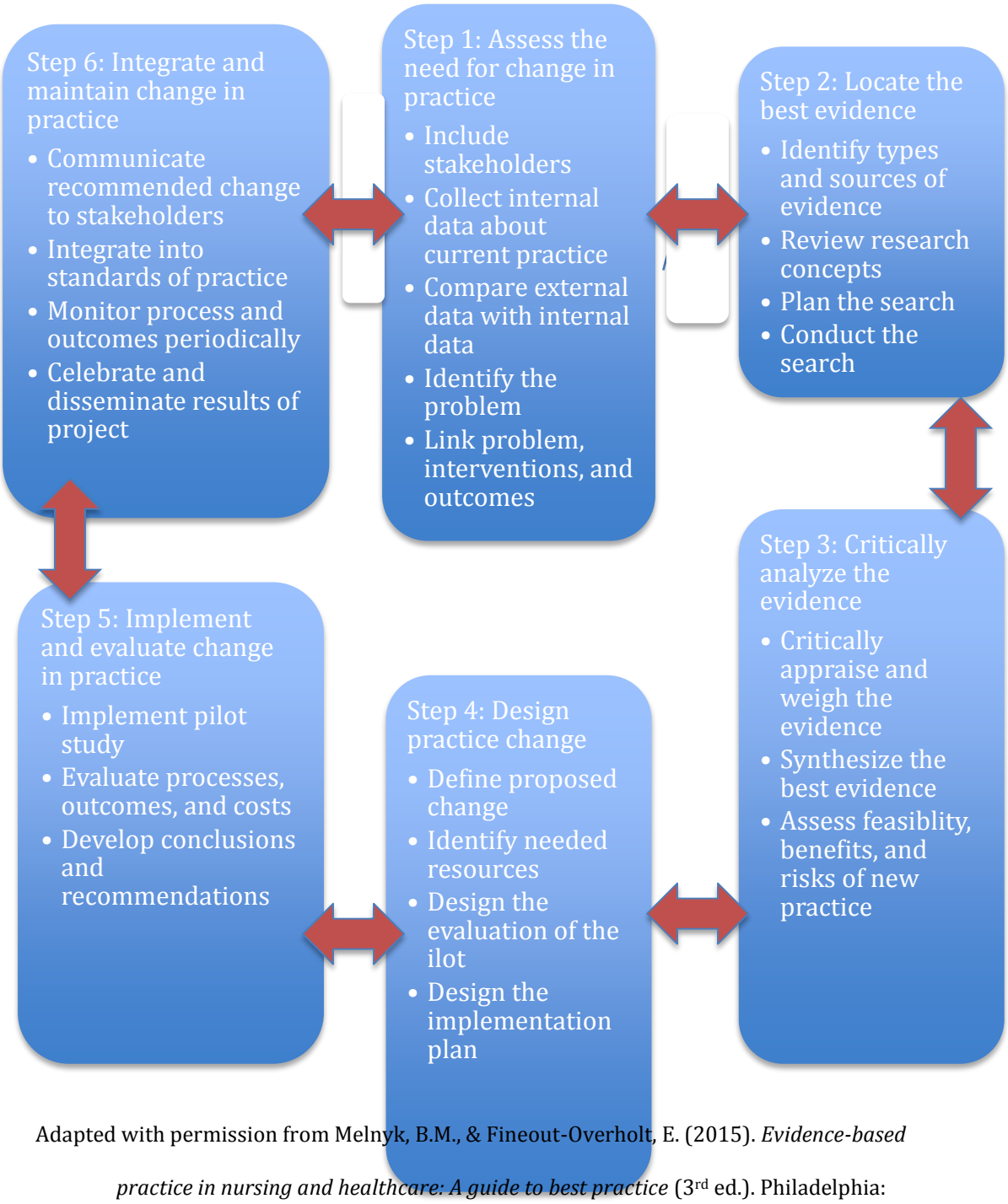
Design/Method
EBP Evidence-based Practice Guideline
RCT Randomized Control Trial
MA Meta-analysis
CS Cross-sectional
PC Prospective Cohort

Sample/Setting
Ger Geriatrics
AC Acute Care
SAR Subacute Rehabilitation
SNF Skilled Nursing Facility
ILF Independent Living Facility
ALF Assisted Living Facility
LTC Long Term Care Facility

Outcome Measures:
GDS Geriatric Depression Scale
GDS-SF Geriatric Depression Scale-Short Form
GDS-4 Geriatric Depression Scale 4 Question Screening
MMSE Mini Mental State Exam
DIA-S Depression in Old Age Scale
MADRS Montgomery and Asberg Depression Rating Scale
BDI Beck Depression Inventory
BAS Brief Assessment Schedule
GECDS Geriatric and Extended Careline Depression Screen
DTI Divergent Trait Inventory
AMT Abbreviated Mental Test
MHI-1 Mental Health Inventory

Appendix E

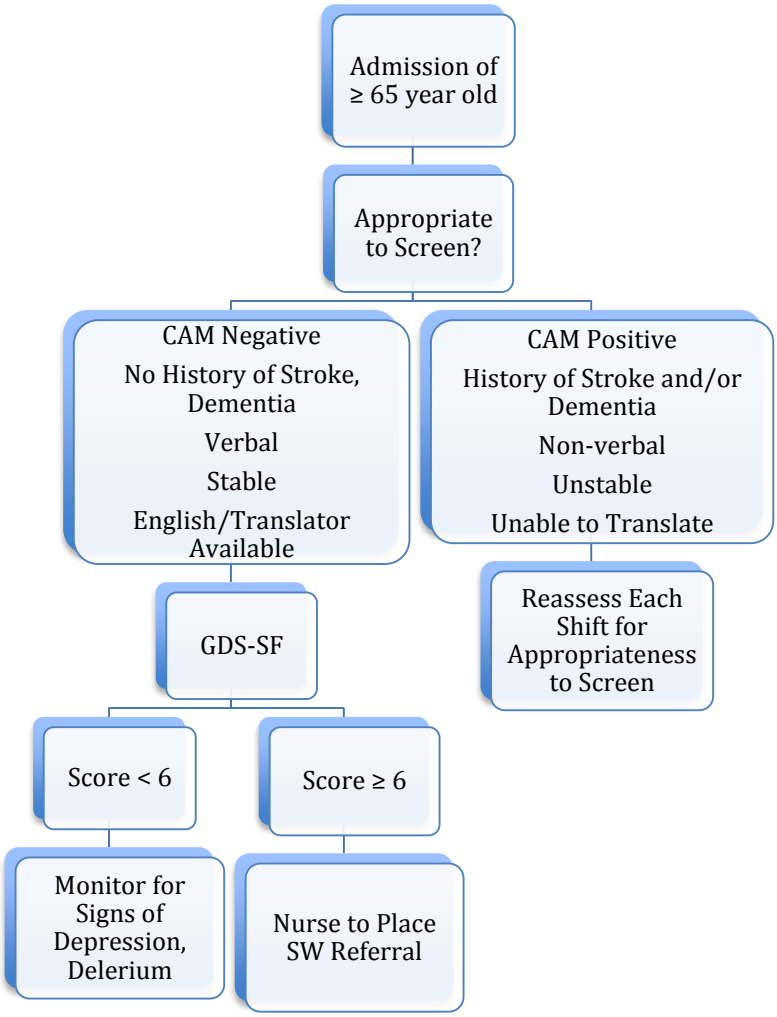
Model for Evidence-Based Practice Change



Adapted with permission from Melnyk, B.M., & Fineout-Overholt, E. (2015). *Evidence-based practice in nursing and healthcare: A guide to best practice* (3rd ed.). Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins.

Appendix F

Protocol for Screening



- Screen *once* per admission
- Charge RN to screen those patients in the care of a "pull" RN
- Social Work (SW) referrals may be placed by RN under "Protocol" or "Department" and do not need a physician signature.

Adapted from Harper, K. (2015). *Implementation of the Geriatric Depression Scale – Short Form: A white paper.*

Appendix G

Registered Nurse Post-Implementation of the GDS-SF Survey

1. How long did it take to use the GDS-SF?
    a. 1-5 minutes
    b. 6-10 minutes
    c. Longer than 10 minutes
    d. Did not use it
2. Was using the GDS-SF purposeful and useful in screening for depression in the patients you care for?
    a. Yes
    b. No
    c. Did not use it
3. Did you feel using the GDS-SF assisted you in identifying potentially depressed patients?
    a. Yes
    b. No
    c. Did not use it
4. What did you think went well when screening using the GDS-SF?
    a. (Free-text box)
    b. Did not use it
5. What do you think could have gone better when using the GDS-SF?
    a. (Free-text box)
    b. Did not use it
6. Any additional comments or questions?
    a. (Free-text box)
    b. Did not use it

Appendix H

Institutional Review Board Determination Letter-Mercy Health Saint Mary's

Institutional Review Board - 200 Jefferson Ave. SE – Grand Rapids, MI 49503 - P: 616.685.6198

NOTICE OF CLINICAL QUALITY IMPROVEMENT MEASUREMENT DESIGNATION

To: Kimberly Harper, BSN
Re: IRB# 16-0401-1
Screening Initiative for Non-Stroke Geriatric Inpatients
Date: April 4, 2016

This is to inform you that the Mercy Health Regional Institutional Review Board (IRB) has reviewed your proposed research project entitled "Screening Initiative for Non-Stroke Geriatric Inpatients. The IRB has determined that your proposed project is not considered human subjects research. The purpose and objective of the proposed project meets the definition of a clinical quality improvement measurement. All publications referring to the proposed project should include the following statement:
"This project was undertaken as a Clinical Quality Improvement Initiative at Mercy Health and, as such, was not formally supervised by the Mercy Health Regional Institutional Review Board per their policies."

The IRB requests careful consideration of all future activities using the data that has been proposed to be collected and used "in order to address a lack of routine screening for depression in the geriatric inpatient population utilizing an evidence-based screening tool with subsequent referrals if indicated, to improve the quality of care provided".

The IRB requests resubmission of the proposed project if there is a change in the current clinical quality improvement measurement design that includes testing hypothesis, asking a research question, following a research design or involves overriding standard clinical decision making and care.

Please feel free to contact me if you have any questions regarding this matter.
Brenda Hoffman
IRB Chairperson
Copy: File

Appendix I

Institutional Review Board Determination Letter-Grand Valley State University

DATE: April 5, 2016
TO: Kimberly Harper, BSN
FROM: Grand Valley State University Human Research Review Committee
STUDY TITLE: [891186-1] Screening Initiative for Non-Stroke Geriatric Inpatients
REFERENCE #:
SUBMISSION TYPE: New Project
ACTION: NOT RESEARCH
EFFECTIVE DATE: April 5, 2016
REVIEW TYPE: Administrative Review

Thank you for your submission of materials for your planned research study. It has been determined that this project: DOES NOT meet the definition of covered human subjects research* according to current federal regulations. The project, therefore, DOES NOT require further review and approval by the HRRC. If you have any questions, please contact the Research Protections Program at (616) 331-3197 or rpp@gvsu.edu. The office observes all university holidays, and does not process applications during exam week or between academic terms. Please include your study title and reference number in all correspondence with our office.

*Research is a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge (45 CFR 46.102 (d)).
Human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains: data through intervention or interaction with the individual, or identifiable private information (45 CFR 46.102 (f)).
Scholarly activities that are not covered under the Code of Federal Regulations should not be described or referred to as research in materials to participants, sponsors or in dissemination of findings.

Research Protections Program | 1 Campus Drive | 049 James H Zumberge Hall | Allendale, MI 49401
Ph 616.331.3197 | rpp@gvsu.edu | www.gvsu.edu/rpp

Appendix J

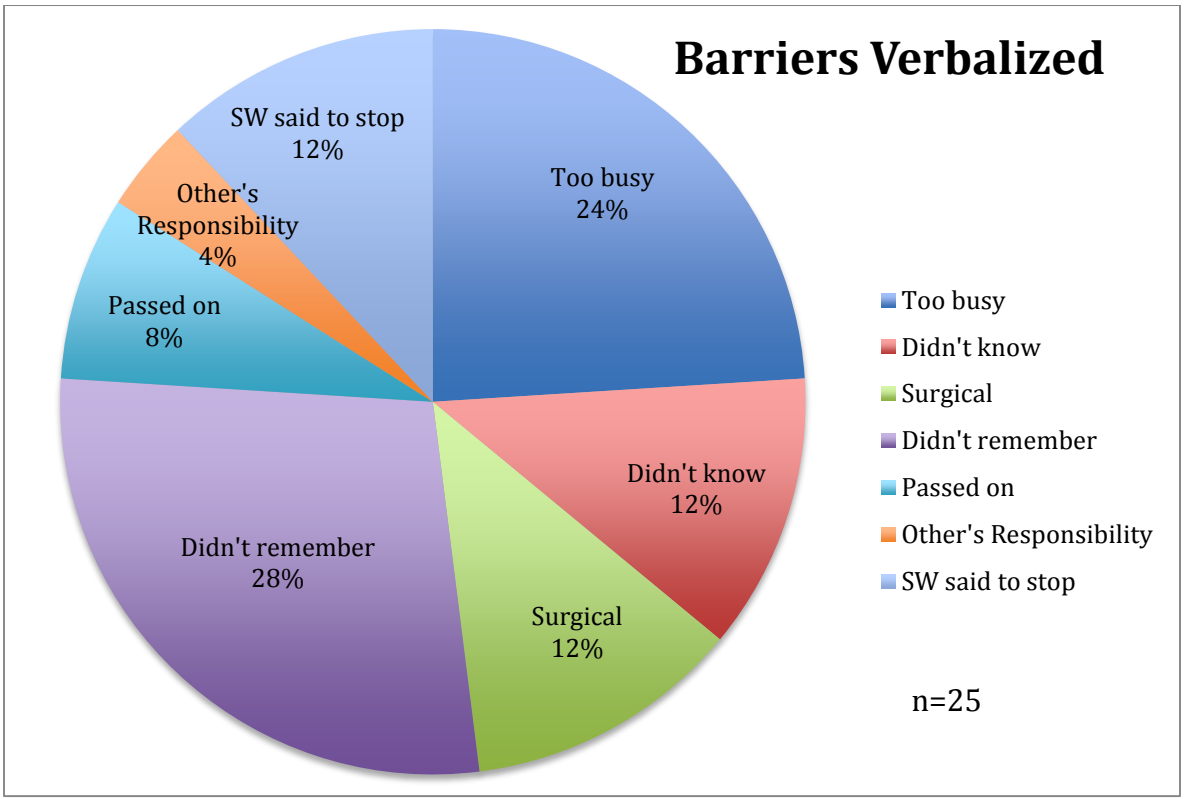
Implementation Data

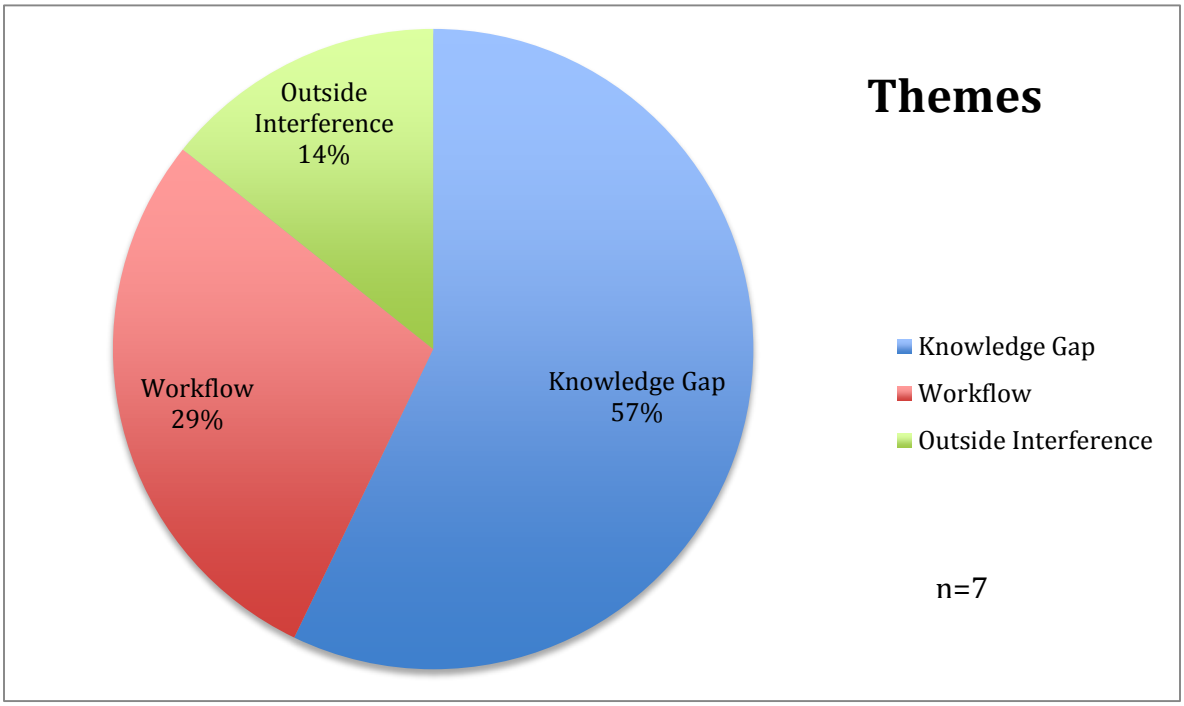
Day	Age	GDS Completed	GDS Score	SW Referral Placed	SW saw pt?
1	72	No			
1	79	Yes	3		
1	66	No			
1	87	No			
1	72	No			
3	78	Yes	0		
3	91	No			
3	82	No			
3	74	No			
3	74	No			
3	68	No			
3	74	No			
4	74	Yes	4		
5	78	Yes	3		
6	80	Yes	7	Yes	Yes
6	68	Yes	6	Yes	Yes
7	74	Yes	0	No	
7	77	No			
7	75	Yes	1	No	
8	73	Yes	0	No	
8	75	Yes	1	No	
8	65	Yes	5	No	
8	70	No			
8	85	Yes	4	No	
8	77	Yes	4	No	
9	73	No			
9	71	Yes	0	No	
9	77	Yes	5	No	
10	84	Yes	1	No	
11	72	Yes	3	No	
12	72	Yes	5	No	
13	68	Yes	0	No	
13	69	Yes	0	No	
13	67	Yes	2	No	
14	67	No			

Day	Age	GDS Completed	GDS Score	SW Referral Placed	SW saw pt?
14	69	Yes	3	No	
15	70	Yes	2	No	
16	65	Yes	4	No	
16	76	Yes	5	No	
16	97	Yes	0	No	
17	80	Yes	0	No	
17	75	Yes	1	No	
17	75	Yes	4	No	
18	77	Yes	0	No	
19	79	Yes	1	No	
20	76	Yes	2	No	
21	81	Yes	0	No	

Appendix K

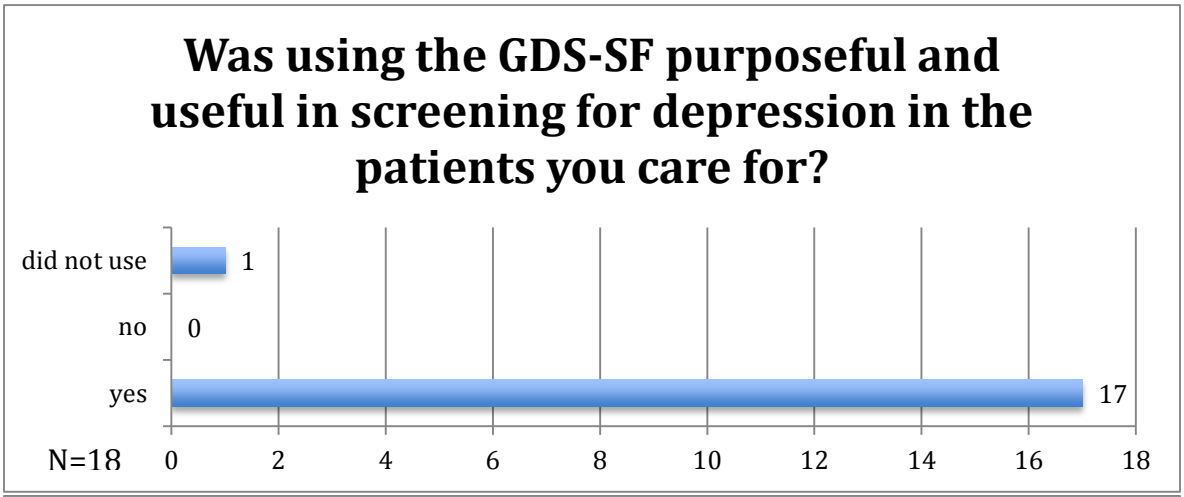
Reflective Journal Thematic Analysis: Barriers Verbalized and Themes Identified

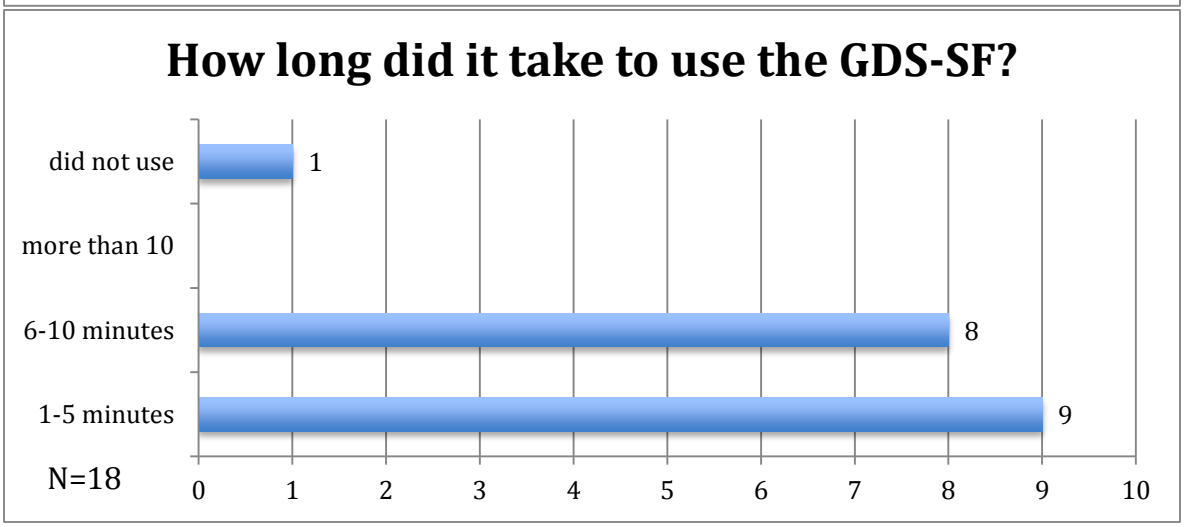


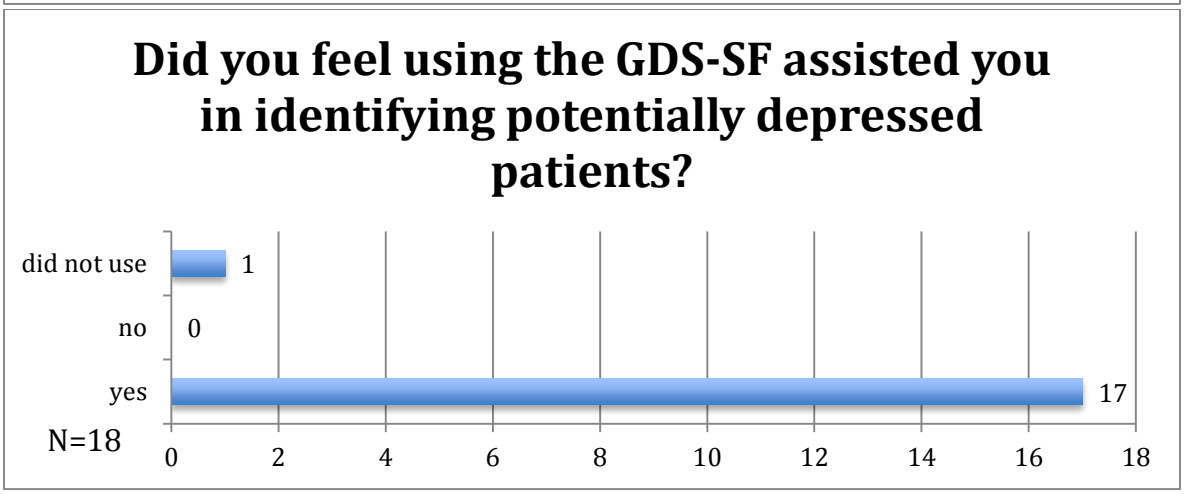


Appendix L

RN Survey Results

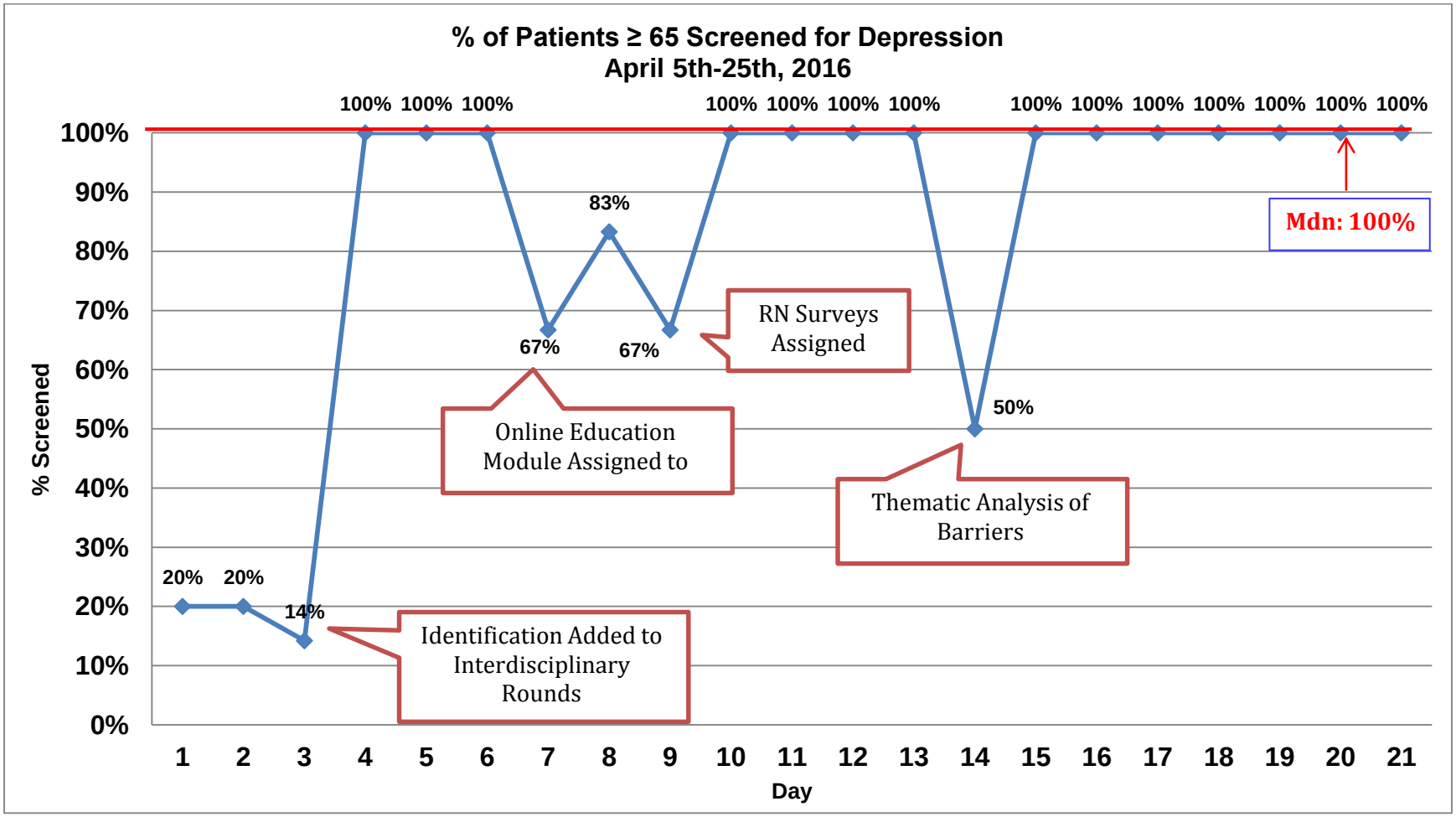






Appendix M

Run Chart: GDS-SF Screening Rates



Appendix N

Poster Presentation

Screening Initiative for Non-Stroke Geriatric Inpatients Using the Geriatric Depression Scale – Short Form

Kimberly Harper BSN, RN

BACKGROUND

- Depression is one of the most frequent psychiatric syndromes experienced by the geriatric population, with as many as 30% of hospitalized patients aged 65 years and older experiencing symptoms of depression
- Depressed geriatric inpatients have increased rates of readmissions, increased costs during hospitalization totalling an additional $49.70 per day over their non-depressed counterparts, and increased risk of suicide over that of even their depressed but younger counterparts.
- With researched screening tools such as the evidence-based Geriatric Depression Screening –Short Form tool widely available for use, much work for improvement on implementation of routinge screening for depression is required for this population.

PURPOSE

- To improve routine screening for depression in the non-stroke geriatric inpatient population utilizing an evidence-based screening tool with subsequent referrals if indicated for the purpose of improving the quality of care provided to this population.

References available upon request

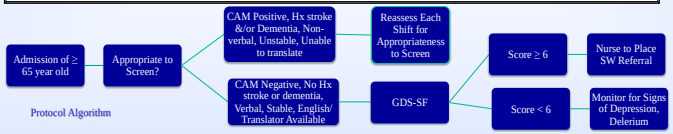
Methods

Modeling
- An exemplar inpatient unit was modeled for the development of a protocol algorithm

Education
- Nurses on an inpatient unit designated for scaling-up of depression screenings were provided with in-person and online education to prepare for implementation

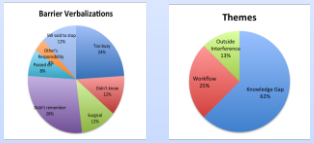
Implementation and Evaluation
- Implementation of the protocol algorithm by bedside nurses over a 3-week period
- Timely feedback to individual nurses and the unit as a whole provided weekly during implementation
- Data collection through electronic medical record data and registered nurse surveys

Integration
- Policy for inpatient geriatric depression screening with updated protocol algorithm developed and provided to the organization, as well as an updated online education module



Protocol Algorithm

Qualitative Analysis

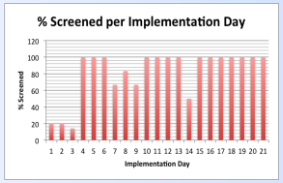


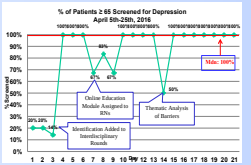
Thematic Analysis of RN Barriers to Implementation

Thematic analysis of the project developer's journal found barriers to implementation related to knowledge gaps, workflow concerns, and outside influences.

RESULTS

- Improved registered nurse mental health knowledge and attitudes
- Improved screening efforts of hospitalized patients meeting designated criteria using the Geriatric Depression Scale – Short Form within 24 hours of admission
- Assurance that those with a score of 6 or greater received a social work referral
- Change in registered nurse clinical practices





CONCLUSIONS

- Providing high-quality education to bedside registered nurses improves mental health knowledge and attitudes
- Implementation of a targeted policy with clear algorithm partnered with education initiatives improves screening efforts in the geriatric non-stroke inpatient population
- Education administered concurrently with implementation of a policy results in a change in registered nurse clinical practices

Appendix O

Essentials of Doctoral Education for Advanced Nursing Practice

American Association of Colleges of Nursing Essential		**Demonstration of Competency**
I	Scientific Underpinnings for Practice	• Integration of knowledge from biophysical, organizational, and nursing sciences to develop, implement, and evaluate a protocol for screening for possible depression in geriatric inpatients. • Incorporated the Model for Evidence-Based Practice Change to develop a protocol for best practice.
II	Organizational and Systems Leadership for Quality Improvement and Systems Thinking	• Implementation of an evidence-based quality improvement project within a complex and diverse healthcare system. • Lead interdisciplinary teams in changing healthcare delivery models as they relate to the care of the geriatric inpatient.
III	Clinical Scholarship and Analytical Methods for Evidence-Based Practice	• Critical analysis, appraisal, and synthesis of current literature on geriatric depression in a literature review aimed at determining best practice. • Served as a practice specialist in the delivery of care including practice outcomes for the potentially depressed geriatric inpatient.
IV	Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care	• Utilized information technology and statistical analysis to evaluate the effectiveness of a quality improvement initiative. • Utilized patient care technology for the administration of an evidence-based screening tool on eligible geriatric inpatients. • Developed and implemented an online educational initiative for the improvement and transformation of healthcare delivery by RNs.
V	Health Care Policy for Advocacy in Health Care	• Advocate for high-quality care for the geriatric inpatient, for social justice in this vulnerable population. • Ensured ethical policies with education on their use were in place for the care of the

		geriatric inpatient for use by the interdisciplinary team.
VI	Interprofessional Collaboration for Improving Patient and Population Health Outcomes	• Collaborated interprofessionally with healthcare team members to improve the care of the vulnerable health population of geriatric inpatients.
VII	Clinical Prevention and Population Health for Improving the Nation's Health	• Developed and implemented a protocol using evidence-based clinical practice to screen for depression in the vulnerable population of geriatric inpatients. • Utilized epidemiological and biostatistical data from across the nation to develop an informed protocol for the screening of geriatric inpatients for possible depression.
VIII	Advanced Nursing Practice	• Served as a role model and mentor to RNs to exemplify high-quality evidence-based practice standards in the care of the geriatric inpatient. • Established interdisciplinary relationships to ensure sustainability of the protocol long-term.