STANDARDIZING IMPLEMENTATION OF THE AGES AND STAGES QUESTIONAIRRE-3 IN PRIMARY CARE

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INTRODUCTION

Problem:
- Developmental and behavioral disabilities affect 13-15% of children (Centers for Disease Control and Prevention [CDC], 2015).
- Signs of delay by two but initially recognized at ten (CDC, 2015).
- Only 2-3% with developmental disabilities receive intervention before three years old (Rosenberg, Zhang, & Robinson, 2008).
- 70% who failed the Ages and Stages Questionnaire-3 (ASQ-3) were not identified through surveillance (Thomas et al., 2012).

Recommendations:
- Developmental screening at 9, 18, and either 24 or 30 month well child checks (American Academy of Pediatrics, 2006)
- Healthy People 2020: Increase screening and enrollment in special services (Office of Disease Prevention and Health Promotion, 2015)

Review of Literature:
- Screening leads to 68% shorter time to identification and 70% shorter time to intervention referral (Guevara et al., 2013).
- Developmental screening initiatives lead to achievement of 85% screening rate (Allen, Berry, Brewster, Chalasani, & Mack, 2010).
- Physicians are more likely to refer based on ASQ scores than without screening (Roane, Valleley, & Allen, 2012).
- Early intervention services improve outcomes (Miller, 2007).

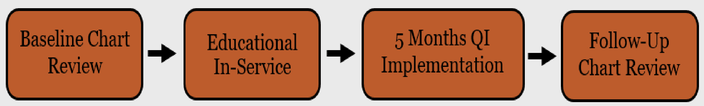
PICOT Question

In family practice primary care providers (P), does an initiative on early childhood developmental screening using the ASQ-3 (I) compared to previous practice (C) improve the rate of developmental screening and early referral for diagnosis and intervention (O) over five months (T)?

Objectives

1. Thirty percent of all children presenting for their 9, 18, and 24 month well child checks will be screened using the ASQ-3 within the first five months of project initiation.

2. Thirty percent of children presenting for their 9, 18, and 24 month well child checks who score in the range of needing a referral on the ASQ-3 will be offered either further assessment by a pediatric specialist or early intervention services within the first five months of project initiation.

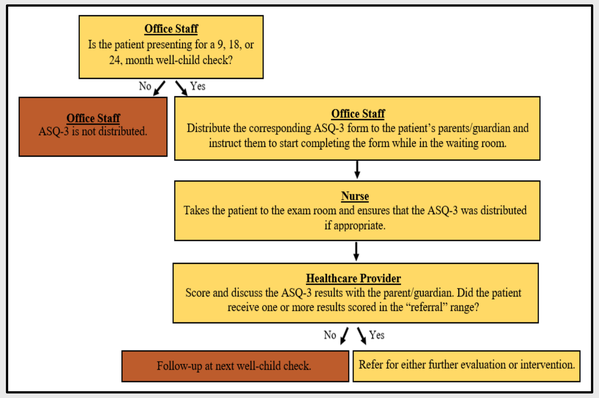


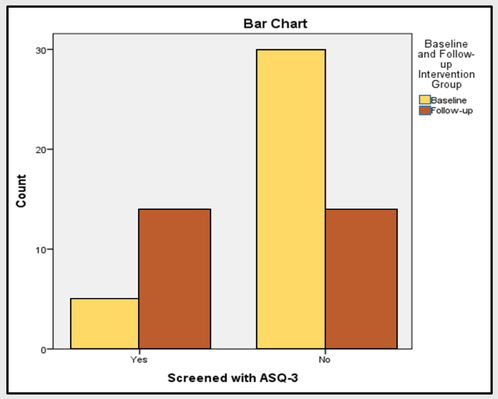
MATERIALS AND METHODS

Setting and Population:
- Rural hospital affiliated family practice clinic in Missouri
- In-service attendees: healthcare providers, nurses, and ancillary staff of the clinic
- Screening population of interest: children attending their 9, 18, and 24 month well-child checks

Study Design/Methods:
- Longitudinal quality improvement project with chart review at baseline and five months follow-up
- Educational in-service during a monthly staff meeting:
  - Benefits of developmental screening
  - Introduction and education on how to use the ASQ-3 and how to act on results
  - Suggested workflow to implement into practice

Tools/Measures:
- ASQ-3 (reliability .92, validity .82-.88) (Ages and Stages Questionnaire, 2015).
- Using a 5% margin of error, 95% confidence level, population size of 38, and 50% response distribution, a minimum of 35 charts need to be reviewed (Raosoft, Inc., n.d.).
- Convenience purposive sample with simple random sampling method.
- Nominal level data was analyzed with the Chi-square test of Independence. The *phi* coefficient (ϕ) was used as an index to describe the magnitude of the effect from the intervention with values .10, .30, and .50 corresponding to small, medium, and large respectively. Ratio level data was analyzed with the Independent t-test. Measures of clinical significance such as odds ratio and 95% confidence intervals were calculated. IBM SPSS Statistics version 24 (Chicago, IL) was used for statistical analysis. The level of significance was set at $p \leq .05$.





RESULTS

Demographics: There was no statistically significant difference between baseline and follow-up in age (p = .26), gender (p = .63), race (p = .83), or well-child check attended (p = .48).

Objective 1 Met: Baseline screening rate was 14% (n = 5) and at follow-up was 54% (n = 14), a 40% increase and is both statistically and clinically significant with a moderate to large increase in screening, χ^2 (1) = 10.89, p = .001, *phi* (Φ) = .42. The follow-up group was two and half times more likely to be screened with the ASQ-3 following the educational in-service, OR = 2.58, 95% CI [.04, .48].

Objective 2 Not Measureable: No subjects in the follow-up group met criteria for a referral. Of subjects in the baseline group who received at least one score in the "referral range", 100% (n = 1) were offered a referral.

RESULTS

Additional Findings:
- Improvement in documentation was both statistically and clinically significant, χ^2 (1) = 9.98, p = .002, Φ = .7. The follow-up group was over three times as likely to chart ASQ-3 results after screening compared to the baseline group, OR = 3.28, 95% CI [1.95, 5.51].
- There was an overall decrease in distribution of developmental activities for children who scored in the "monitor" or referral" range. There was no statistical significance but there was a small clinically significant difference, χ^2 (1) = 1.54, p = .22, Φ = .2.

CONCLUSIONS

- An educational in-service is successful at increasing early childhood developmental screening rates.
- Further investigation with larger population size and longer timeframe is needed to determine effect on referral rates and sustainability.
- Distribution of developmental activities decreased between baseline and follow-up, additional education was provided after data analysis.

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ACKNOWLEDGEMENTS

A special thank you to Dr. Delilah Pennington (Committee Chair), Dr. Gina Oliver (Committee Member), Tony Cook (Committee Member), Dr. Jan Sherman (statistics consult), Dr. Kevin Frazer, and the Fayette Medical Clinic.

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