BMJ Quality Improvement Reports

BMJ Quality Improvement Reports 2015; u209517.w3913 doi: 10.1136/bmjquality.u209517.w3913

Improving validated depression screen among adolescent population in primary care practice using electronic health records (EHR).

Sathyanarayan Sudhanthar, Kripa Thakur, Yakov Sigal, Jane Turner
Dept. of Pediatrics, College of Human Medicine, Michigan State University, USA

Abstract

Adolescent depression, has been identified as one of the important risk factors for adolescent safety. The American Academy of Pediatrics (AAP) recommends screening the adolescent population for depression with a validated screening tool at least once a year. Given the time constraints in primary care, many physicians tend to rely more on clinical questioning to screen depression.This has the potential to miss many adolescents who may have mild to moderate depression which may prove detrimental to their emotional and physical health.

Quality measures had consistently indicated that the validated adolescent depression screening rate in our two pediatric clinics was 10-15% in the past two years starting from 2012. There was a need to increase our screening rate for adolescent depression with a validated questionnaire. The stakeholders identified were physicians, nurses and the health information team (HIT).

The Patient Health Questionnaire-2 (PHQ-2) is a standardized tool and serves as a good first step rapid screening of the population. A decision was made to implement the use of PHQ-2 to all the adolescents aged 11-21. A clinic flow protocol was developed. As the patient checks in, there will be a computer pop-up reminding nurses to administer the PHQ-2. The PHQ-2 self-scores in the Electronic Health Record (EHR) and if the score is three or more the nurses would automatically administer the PHQ-9 which is also embedded and self-scored in the EHR.

After 12 months of implementing this project with four PDSA cycles, the adolescent depression-screening rate improved from 10-15% from the previous two years to 65% (six month period) and 82% at the end of the 12 month period. The rate of referral to mental health services had also increased in the same time period compared to the previous years. In conclusion, screening for adolescent depression with a brief validated tool in a busy primary care office is possible with the help of the EHR.

Problem

Providers at the Michigan State University College of Human Medicine in Michigan, U.S.A during their internal review realized that adolescent depression screening was not being performed uniformly across all the providers with a validated instrument. Many providers screened by relying on asking a few questions about depression when interviewing adolescents but there was no uniformity. This meant many adolescents who may have had mild to moderate depression may have been missed due to the inconsistent ways of screening across multiple providers. Also, many providers did not document that they had screened for adolescent depression during their annual health visits and other mental health related visits. This problem is primarily due to a lack of validated quick screening tool that does not impair the flow of the clinic in a busy practice.

Background

Pediatric practices across the nation in United States, have inconsistent ways to screen depression. A Norwegian study reports only 34 percent of the adolescents in the 99th percentile for symptom severity for anxiety and depression sought treatment. (1) Most providers rely on clinical interviewing to screen depression. One study reports only one out of 245 providers use validated screening. (2) The United States Preventive Services Task Force (USPSTF) states that providers have reported screening in about 65% of patients but only 3-5% of patients have had documented screening in their charts. Further, the USPSTF in 2009 strongly recommended yearly screening in the adolescent population from ages 12-18 years, with a validated screening tool. This is a modification from it's prior recommendation made in 2002, that there is insufficient evidence to screen adolescent population. (3) The Bright Futures work group from the American Academy of Pediatrics which recommends the preventive screening guidelines recommends the use of PHQ-2 as a quick screening tool in day to day primary care supplemented by PHQ-A/PHQ-9 or other validated tools if PHQ-2 was positive.(4) Another study reports that 50 percent of pediatricians diagnose depression based on their overall impression and inquiry about one to two symptoms and only 17 percent used formal Diagnostic and Statistical Manual (DSM-IV) criteria for assigning a diagnosis. (5) 90 percent of pediatricians reported that depression screening is their responsibility, but only half had the necessary confidence that they could recognize depression. (6) By not screening with a validated tool, adolescent depression may be missed which could be detrimental to the emotional health of an individual.

Baseline measurement

For this project, we randomly selected about 50 adolescents each from the prior two years (2012-2013) who had presented for yearly physical or sports physical visits. Patients who already had a diagnosis of depression or mood problems were excluded. We reviewed the health records of all the 100 adolescents from ages,11-21 years and found that only 10% (n=5) adolescents in 2012 and 16% (n=8) adolescents in 2013 had been routinely screened with a validated tool for depression according to the documentation of the physicians.

Design

The stakeholders identified were physicians, nurses and the health information team (HIT). The team met every other week for 1-2 hours and started to work on methods to increase the rate of depression screening based on PDSA cycles. Help was sought from HIT to embed some of the standardized mental health evaluation forms like Patient Health Questionnaire-2 (PHQ-2), PHQ-9 etc. within the chart. The PHQ-2 is considered as a standardized tool by AAP for initial adolescent depression screening and serves as a good screening tool with a cut off greater than or equal to 3 serving as a positive for screening. (4,7) A decision was made to implement this two question tool to all the adolescents aged 11-21 years of age who presented for their annual physical or sports physical. A clinic flow protocol was developed. As the patient checked in, there would be a pop-up in EHR reminding nurses to administer the PHQ-2. The PHQ-2 then self-scores in EHR and if the score is 3 or greater, then the nurses would administer the PHQ-9 to the patients which again self-scores in the health record along with the interpretation. The results of the PHQ- 2 and PHQ-9 were documented by the providers using a short text. The PHQ-9 was selected ahead of PHQ-A as it was already familiar to all the providers and the PHQ-A is only a modified derivative from PHQ-9. Quarterly reports were obtained from the HIT about our progress.

Strategy

PDSA Cycle 1: The PHQ-2 tool was embedded in all the charts and the clinic flow protocol was developed. The tool was easy to use. It was demonstrated for staff and providers by the HIT and with their approval it was rolled out only to adolescents who came for health checks. It was noted that staff and providers were confused about the cut-off for PHQ-2 which would then enable them to use a second screen if the PHQ-2 was positive, so the team went back to the HIT.

PDSA Cycle 2: HIT added the cutoff (> or equal to 3) to all the tools. The staff understood that with a score of 3 or more the screen is considered positive and they should be administering a detailed screen PHQ-9 to the adolescents. The HIT then embedded PHQ-9 in the EHR along with the self-scoring ability. However, many of the nurses and staff were still not able to understand what the different scores of the PHQ-9 meant.

PDSA cycle 3: Along with the score for PHQ-9 a complete explanation of categorizing depression based on the scores were incorporated in the tool. The process became more clear to staff and physicians. Still there was minimal documentation from physicians even if the patients have had a positive PHQ-2 and or PHQ-9.

PDSA cycle 4: Short texts were created which would let users comment on the PHQ-2/PHQ-9 scores very quickly. After making sure that the flow was clear for all the stakeholders the project was implemented for all adolescents ages 11-21 who present for their regular physical or sports physical.

Results

After 12 months of implementing this project, the adolescent depression screening rate improved from 10-15% from the previous 2 years to 65% at the end of the six month period (PDSA cycle-4) and 82% at the end of 12 month period. Also, the rate of improvement was seen across all the age groups, all of the providers and in both of our clinical sites. The rate of referral to mental health services had also increased in the same time period compared to the previous years by 38%.

See supplementary file: ds6275.pptx - “Depression screening rates with each PDSA cycle”

Lessons and limitations

Stakeholders are the backbone for Quality Improvement projects. The Health Information team members were busy in the midst of new EHR updates and preparation for ICD -10 transition. Hence constant communication was key, with a member who had buy in with this project. Also, physicians and staff are already short of time and there is a usual push back for adding more tools to screen the patients. Having the screening tools incorporated and self-score in the EHR was a big factor for physician and staff buy in to this project. Though we did not measure the time taken for administering this tool to the patients, we did not get any negative comments from our patients. The nursing staff expressed that the tool fitted perfectly with their work flow.

Conclusion

This is a positive outcome for this project in a relatively short period of time and further plans will be to repeat the cycle and continue to improve on the adolescent mental health screen including anxiety and depression. The rate of screening with a validated tool improved significantly along with the rate of referral to mental health services. This project shows that by using the existing technology including the EHR and with the buy in from stakeholders, quality improvement projects like these could be done to definitely impact the population we serve. By using validated screening tools, providers could standardize diagnosing adolescent depression and ensure adequate services to this population. This project is a suitable example of continuous practice based learning.

References

1. Klein JD, Allan MJ, Elster AB,Stevens D, Cox C, Hedberg VA et al. Improving adolescent preventive care in community health centers. Pediatrics. 2001;107(2):318–27.
2. Halpern-Felsher BL, Ozer EM, Millstein SG,Wibbelsman CJ, Fuster CD, Elster AB, et al. Preventive services in a health maintenance organization: how well do pediatricians screen and educate adolescent patients? Archives of Pediatrics & Adolescent Medicine. 2000;154(2):173–9.
3. Williams SB, O'Connor E, Eder M, Whitlock E. Screening for child and adolescent depression in primary care settings: a systematic evidence review for the US Preventive Services Task Force. Pediatrics 2009; 123(4):e716.
4. Simon GR, Baker C, Barden GA III.et al. Bright Futures Periodicity Schedule Workgroup. 2014 Recommendations for pediatric preventive health care. Pediatrics. 2014;133:568-570.
5. Costello EJ, Edelbrock C, Costello AJ, Dulcan MK, Burns BJ, Brent D. Psychopathology in pediatric primary care: the new hidden morbidity. Pediatrics. 1988;82:415–424.
6. Olson AL, Kelleher KJ, Kemper KJ, Zuckerman BS, Hammond CS, Dietrich AJ. Primary care pediatricians' roles and perceived responsibilities in the identification and management of depression in children and adolescents. Ambul Pediatric. 2001;1:91–98.
7. Richardson LP, Rockhill C, Russo JE, Grossman DC, Richards J, McCarty C, etal. Evaluation of the PHQ-2 as a brief screen for detecting major depression among adolescents. Pediatrics. 2010 May;125(5):e1097-103.

Declaration of interests

None to declare

Acknowledgements

Primary Care MSU-CHM Pediatric team including Jonathan Gold M.D; Olga Napolova M.D; Jessica Gengler D.O; Michael Stiffler M.D and the nursing staff.

Ethical approval

According to the Institutional Review Board at the Michigan State University "This project is deemed exempt as federal regulations for protection of human subjects will not apply to the project as this project is merely aimed at improving the quality and rate of screening against the national average." MSU IRB determined that the project did not need their approval.