

bhworks

Behavioral Health Works

The tools in bhworks software platform from mdlogix have been utilized by some of the nation's leading healthcare institutions, including Children's Hospital of Philadelphia, Johns Hopkins HealthCare Solutions, SAMHSA, NIDA, HRSA, and CMS.

Publication Abstracts

mdlogix

(410) 828-8948

www.mdlogix.com

bhworks
Mental Health Software for Schools
mdlogix.com

Rivers, A. S., Winston-Lindeboom, P., Atte, T., Rosen, P., Wintersteen, M., Watkins, N. K., Tien, A., & Diamond, G. (in press). Differentiating between youth with a history of suicidal thoughts, plans, and attempts. *School Mental Health*.

Limited research has examined factors distinguishing between patterns of adolescent suicidal thoughts and behaviors. The current study examined demographic, school, family, and mental health differences across patterns identified by Romanelli and colleagues (2022): history of thoughts only, plans with thoughts, attempt with thoughts and/or plans, and attempt without thoughts. The current study includes 4,233 students ($M_{age} = 14.65$ years, $SD = 2.06$) with a history of suicide risk referred to school Student Assistance Program teams. The sample was approximately 60.7% female, 59.8% White (16.0% Black, 15.4% multiracial, 8.8% other), and 14.4% Hispanic. Results indicated that the “attempt without thoughts” group was small with no differentiating characteristics. However, membership in the other three groups was predicted by demographic, school, family, and mental health factors. These results support the importance of examining suicidal thoughts, plans, and attempts as distinct indicators and assessing key biopsychosocial factors. Further research could improve how behavioral health systems identify at risk youth.

Weissinger, G., Ho, C., Ruan-lu, L., Van Fossen, C., & Diamond, G. (2022). Barriers to mental health services among college students screened in student health: A latent class analysis. *Journal of American College Health*, 1-7. <https://doi.org/10.1080/07448481.2022.2104614>

Background: Almost a third of college students experience significant mental health concerns, but many do not receive adequate services. This study investigated barriers to mental health services among college students screened in a student health center primary care service. Method: Students (N = 1662) presenting for primary care completed mental health screenings and a barrier measure in the student health center of a university. Latent class analysis created barrier profiles. Results: Three barrier profiles were identified (none, logistical, all barriers). Profiles related to gender ($p < .001$), with logistical/all barrier profiles more likely amongst female students. No significant difference found by race. Students with higher depression scores were more likely to report logistical barriers than no barriers ($p < .001$). Conclusion: Programs must address multiple barriers to successfully engage students in treatment. Tailored interventions, including in primary care, should assess and respond to individual barriers, not just common ones.

Rivers, A. S., Winston-Lindeboom, P., Ruan-lu, L., Atte, T., Tien, A., & Diamond, G. (2022). Validation of a parent report on externalizing symptoms scale: A downward extension of the behavioral health screen. *School Psychology*. Advance online publication. <https://doi.org/10.1037/spq0000520>

Externalizing problems are common in children ages 6-14, can have lifelong consequences, and may pose a particular risk when combined with other risk factors and symptoms (like depression and anxiety). Schools are uniquely positioned to assess and address these types of behavioral health concerns, but many school-based assessments do not focus on mental health distress (partially because they often lack the infrastructure for identification, screening, and referral). To address this gap, the Behavioral Health Works program student mental health software system has integrated teacher training, psychometrically strong assessments, feedback, and referral tools. However, this self-report tool for adolescents needed to be adapted for younger children. Thus, a parent-report version was added as well as new scales for better assessing this age group. The present study examines the psychometric properties of the new parent-report attention-deficit hyperactivity disorder (ADHD) and oppositional defiant/conduct scales within a sample of 440 children referred for school-based assessments. Overall, the new scales demonstrated good structural validity, measurement invariance across most demographic groups, discrimination in item response theory analyses, and evidence of convergent validity and good classification accuracy in relation to a validation battery. These externalizing scales are distinct and precise and show promise for improving

the effectiveness of school-based programs for identifying at-risk children. (PsycInfo Database Record (c) 2022 APA, all rights reserved).

Weissinger, G., Rivers, A. S., Atte, T., & Diamond, G. (2022). Suicide Risk Screening in the School Environment: Family Factors and Profiles. *Children and Youth Services Review, 106766.*
<https://doi.org/10.1016/j.childyouth.2022.106766>

Youth suicide is a major issue that schools have begun to address through a variety of approaches. Suicide risk assessment supports identification of students at risk and referral to services. Unfortunately, few suicide risk assessments incorporate family factors which can be useful for understanding level of risk and response options. Using data from 12,760 students screened in the Pennsylvania Student Assistance Program, this study identified family profiles of students and identified relationship between these profiles and suicide risk. Latent class analysis identified four family profiles (high, moderate, low risk, and minimal disclosure) which were related to suicide risk, school concerns (academic performance, bullying) and mental health concerns (depression severity, anxiety). Hierarchical regression modeling found that inclusion of the family risk profiles in assessment models showed significant improvement in identification of suicide risk. Overall, inclusion of family risk profiles improves suicide risk assessment and allows for more holistic and targeted responses by schools.

Ruan-lu, L., Rivers, A. S., Barzilay, R., Moore, T. M., Tien, A., & Diamond, G. (2022). Identifying Youth at Risk for Suicidal Thoughts and Behaviors Using the “p” factor in Primary Care: An Exploratory Study. *Archives of suicide research, 1-16.*
<https://doi.org/10.1080/13811118.2022.2106925>

Suicide is a major, preventable public health problem. The general factor of psychopathology ("p" factor) might help improve detection and prediction of individuals at risk for suicide. This cross-sectional proof-of-concept study tests whether the p-factor score is associated with suicidal thoughts and behaviors (STB) better than a depression scale alone. Youth (N = 841; mean age 18.02, SD = 3.36) in primary care were universally screened using the Behavioral Health Screen (BHS). Factor analysis and ROC results showed the BHS assesses the p-factor, and the p-factor score demonstrates higher classification accuracy of several types of STB than a depression scale. The p-factor could help clinicians in the identification of youths with STB.

Quimby, E. G., Brogan, L., Atte, T., Diamond, G., & Fein, J. A. (2022). Evaluating adolescent substance use and suicide in the pediatric emergency department. *Pediatr Emerg Care, 38(2), e595-e599.*

OBJECTIVES This study evaluates the relationship between substance use and impairment and current suicidal thoughts or behaviors in adolescent patients screened in a pediatric emergency department (ED). **METHODS** Data were collected between June 2013 and February 2018 from adolescent patients who presented to a single, urban, pediatric ED. Adolescents completed a computerized, self-administered assessment that evaluates depression, suicide, posttraumatic stress, violence, traumatic exposure, bullying, and substance use. Assessments are administered as standard care to all ED patients aged 14 to 18 years. We used binary logistic regression to estimate the odds of reporting current suicidal thoughts or behaviors associated with patient demographics (ie, age, sex, and race), substance use in the past month, and substance-related impairment. **RESULTS** A total of 11,623 adolescent patients (65.4% female and 52.9% African American) completed the assessment. Participants were, on average, 15.7 years old (SD = 1.27). Younger age (odds ratio [OR], 0.79; 95% confidence interval [CI], 0.74–0.84) and substance use impairment (OR, 0.44; 95% CI, 0.33–0.58) decreased the odds of reporting current suicidal thoughts or behaviors, whereas male sex (OR, 1.51; 95% CI, 1.28–1.79) and those with past-month substance use (OR, 1.85; 95% CI, 1.51–2.26) increased the odds. **CONCLUSIONS** Recent substance use and male sex are associated with a higher likelihood of adolescents reporting current suicidal thoughts or behaviors during an ED visit. Standardized screening during pediatric ED visits may allow for more efficient evaluation of patients in higher-risk group.

Ruan-lu, L., Chod, D., Weissinger, G., VanFossen, C., Sainoz, R., Tien, A., & Diamond, G. (2022). Validation of the behavioral health screen-depression with adolescents in residential care. *Psychological Assessment*.

The purpose of this study was to (1) examine the psychometric properties of the Behavioral Health Screen Depression Subscale (BHS-DS), including internal consistency, factor structure, convergent and discriminant validity, and (2) identify cut-off scores on the BHS-DS to distinguish patients with depression risk and their level of severity among an acute clinical sample of adolescents in residential psychiatric care. Participants included 861 youths ages 10–24 at residential treatment centers who completed a battery of measures, including the BHS-DS and Patient Health Questionnaire (PHQ-9). Factor analysis, bivariate correlation, and Cronbach's α suggested the BHS-DS is a unidimensional scale with evidence of internal consistency reliability and convergent and discriminant validity. Receiver operating characteristic curve analysis identified four clinical cut-off scores (no, mild, moderate, and severe depression risk). Analysis of variance, Cohen's kappa (κ), and Wilcoxon signed-rank test results suggested the four groups differ from each other and that the BHS-DS exhibits moderate agreement with the PHQ-9. The BHS-DS demonstrates good psychometric properties among a sample of residential youth, offering clinicians a good alternative to the PHQ-9 in screening for depression.

Rivers, A. S., Russon, J., Winston-Lindeboom, P., Ruan-lu, L., & Diamond, G. (2021). Family and peer relationships in a residential youth sample: exploring unique, non-linear, and interactive associations with depressive symptoms and suicide risk. *J Youth Adolesc*, 1–12.

Close relationships are consequential for youth depressive symptoms and suicide risk, but nuanced research examining intersecting factors is needed to improve identification and intervention. This study examines a clinical, residential sample of 939 adolescents and young adults ages 10 to 23 years old ($M = 15.84$, $SD = 1.53$; 97.7% white, 99.5% non-Hispanic, 55% female). The final model found that family conflict, parental criticism, verbal bullying, and interactions with friends were associated with depressive symptoms in the expected directions, and there were significant interactions with family, peer, and demographic variables. However, most associations with suicide risk were indirect. Associations involving family factors, peer factors, depressive symptoms, and suicide are not always straightforward, and should be understood within a microsystemic context.

Esposito, J. M., Fein, J. A., Marshall, J., Mitchell, C., Aredas, B., & Zorc, J. J. (2020). Improving mental health communication from the pediatric emergency department to primary care. *Pediatr Emerg Care*, 36(9), 424-429.

OBJECTIVES Suicide is a leading cause of adolescent death, and emergency department (ED) visits are recognized as an opportunity to identify at-risk youth. For patients screening positive for mental health concerns, we implemented a quality improvement initiative to enhance documentation of results and interventions in the ED, increase communication between the ED and primary care providers (PCPs), and increase PCP follow-up. **METHODS** Interventions included education, feedback, and an alert in our electronic health record. Completion of a Behavioral Health Screen (BHS-ED) initiates an alert that reminds ED providers how to document and communicate results and needed follow-up to the PCP. We reviewed a random monthly sample of ED charts for adolescents 14 to 19 years old presenting with nonpsychiatric complaints who screened positive for severe depression or suicidality. Outcome measures included documentation of BHS-ED results in the ED note, communication of positive results to the PCP, PCP follow-up of results, and ED return visits. **RESULTS** Documentation of BHS-ED results increased from 73% at baseline to 88% of patients after the intervention. For patients discharged from the ED with nonpsychiatric chief complaints, communication to PCPs increased from 1% at baseline to 40% during the final 3 months of the study. When PCP communication occurred, 67% of in-network PCPs followed up with patients

versus 5% when no communication took place from the ED. **CONCLUSIONS** A multifaceted intervention including education and an electronic health record alert improved ED documentation, communication, and PCP follow-up of issues identified during ED-based mental health screens.

Russon, J., Mensinger, J., Herres, J., Shearer, A., Vaughan, K., Wang, S. B., & Diamond, G. S. (2019). Identifying risk factors for disordered eating among female youth in primary care. *Child Psychiatry Hum De*, 50(5), 727-737.

Eating disorders are a serious, life-threatening condition impacting adolescents and young adults. Providers in primary care settings have an important role in identifying disordered eating (DE) symptoms. Unfortunately, symptoms go undetected in 50% of patients in medical settings. Using the behavioral health screen, this study identified DE risk profiles in a sample of 3620 female adolescents and young adults (ages 14-24), presenting in primary care. A latent class analysis with twenty psychosocial factors identified three DE risk groups. The group at highest risk for DE was characterized by endorsement of internalizing symptoms and a history of trauma. The next risk group consisted of those with externalizing symptoms, particularly substance use. The group at lowest risk for DE reported more time spent with friends compared to their peers. Primary care providers and psychiatric teams can benefit from knowing the psychosocial risk patterns affiliated with DE, and using brief, comprehensive screening tools to identify these symptoms.

Abaya, R, Atte, T., Diamond, G, Fein, JA (2019). Characteristics and behavioral risk factors of firearm-exposed youth in an urban emergency department. *Journal of Behavioral Medicine*, 42(4), 603-612.

Assessing firearm access among adolescents with behavioral health risk factors is important for the primary prevention of suicide and interpersonal violence. We describe self-reported firearm access and the associated behavioral risk factors and demographic characteristics in a cross-sectional study conducted in the emergency department of an urban pediatric hospital from June 2013 to June 2014. A total of 2258 adolescents received a behavioral health survey to assess access to firearms inside and outside the home, mental health symptoms, and risk behaviors. One of 6 patients in our sample (15%) endorsed access to a firearm. Male gender, lifetime alcohol use, lifetime marijuana use, and lifetime other drug use were associated with access. Participants reporting access were more likely to report clinical levels of lifetime suicidality and depression. The odds of current suicidality were highest in those with 24-h access (OR 2.77 CI 1.73–4.46), compared to those who did not endorse access.

Wang, S.B., Herres, J., & Diamond, G. (2017) Unique interactions of interpersonal trauma and positive peer and family experiences on traumatic distress among pediatric primary care patients. *Journal of Interpersonal Violence*.

Individuals with histories of interpersonal trauma are at increased risk for posttraumatic stress disorder (PTSD). Risk of PTSD is particularly salient during critical periods of development, such as adolescence and emerging adulthood. However, little is known about the unique effects and interactions of protective factors and interpersonal trauma on PTSD symptoms in adolescents and young adults. The current study tested whether positive peer and family experiences decrease the associations between interpersonal trauma and PTSD symptoms and whether these associations differed by victim-perpetrator relationships. Participants included 3,618 adolescents and young adults (aged 14-24 years) who completed the Behavioral Health Screen—a web-based screening tool that assesses psychiatric symptoms and associated risk factors—during a routine visit across 10 primary care sites in Pennsylvania. In support of the stress buffering hypothesis, results revealed that positive peer and family experiences buffered the effects of interpersonal trauma by a romantic partner and an adult in the home. Future research should examine whether programs aimed at improving peer or family relationships improve outcomes for traumatized youth.

Diamond, G., Herres, J., Krauthamer Ewing, E.S., Atte, T., Scott, S., Wintersteen, M., Gallop, R. (2017). Comprehensive Screening for Suicide Risk in Primary Care. *American Journal of Preventive Medicine*.

INTRODUCTION:

Suicide is a major public health problem and a complex clinical challenge. Assessment and early identification could be enhanced with screening tools that look beyond depression. The purpose of this study was to identify profiles of risk behaviors and social stress associated with suicidal ideation and behavior using the Behavioral Health Screen.

METHODS:

The study used screening data from 2,513 primary care patients (aged 14-24 years). Data were collected between 2008 and 2012, and were analyzed in 2016.

RESULTS:

Latent class analysis identified a high and low risk profile. Domains of primary influence included substance use, sexual assault, same-sex behavior, and unsafe sex. The high-risk group was 11 times more likely to have made a suicide attempt, five times more likely to report a history of suicidal ideation and behavior, and three times more likely to report recent suicidal ideation and behavior.

CONCLUSIONS:

Risk behaviors and social stress contribute to the risk for suicide above and beyond depression and should be assessed during routine primary care visits with adolescents. The Behavioral Health Screen can screen all these domains and thus assist primary care providers in assessing for both psychiatric and social stress factors associated with youth suicide.

Shearer, A., Herres, J., Kodish, T., Squitieri, H., James, K., Russon, J., Atte, T., & Diamond, G. (2016). Differences in mental health symptoms across lesbian, gay, bisexual, and questioning (LGBQ) youth in primary care settings. *Journal of Adolescent Health*. doi: 10.1016/j.jadohealth.2016.02.005.

Purpose

Lesbian, gay, bisexual, and questioning (LGBQ) youth exhibit significantly higher rates of mental health problems, including anxiety, depression, suicidal ideation, and nonsuicidal self-injury than their heterosexual peers. Past studies tend to group LGBQ youth together; however, more recent studies suggest subtle differences in risk between sexual minority groups. This study examined differences in mental health symptoms across male and female youth who are attracted to the same sex (gay and lesbian), opposite sex (heterosexual), both sexes (bisexual), or are unsure of whom they were attracted to (questioning) in a sample of 2,513 youth (ages 14–24 years).

Methods

Data were collected using the Behavioral Health Screen—a web-based screening tool that assesses psychiatric symptoms and risk behaviors—during routine well visits.

Results

Bisexual and questioning females endorsed significantly higher scores on the depression, anxiety, and traumatic distress subscales than did heterosexual females. Lesbians, bisexual females, and questioning females all exhibited significantly higher lifetime suicide scores than heterosexual females. Interestingly, bisexual females exhibited the highest current suicide scores. Gay and bisexual males endorsed significantly higher scores on the depression and traumatic distress subscales than did heterosexual males. Gay males also exhibited higher scores on the anxiety subscale than heterosexual males, with bisexual males exhibiting a nonsignificant trend toward higher scores as well.

Conclusions

Findings highlight varying levels of risk across subgroups of LGBQ youth and suggest the importance of considering LGBQ groups separately in the context of a behavioral health assessment, especially for females.

Kodish, T., Herres, J., Shearer, A., Atte, T., Fein, J., & Diamond, G. (2016). Bullying,

depression, and suicide risk in a pediatric primary care sample. *Crisis*, 4-6.

BACKGROUND:

Suicide is a serious public health concern for US youth. Research has established an association between bullying and suicide risk. However, several questions remain regarding this relationship.

AIMS:

The present study examined (a) whether experiences of verbal, physical, and cyber bullying were uniquely associated with general suicide risk; (b) whether each specific form of bullying was related to suicide attempt; and (c) whether depression moderated the relationship between each type of bullying and suicide risk.

METHOD:

The sample included medical records of 5,429 youth screened in primary care when providers had mental health concerns. Patients were screened using the Behavioral Health Screen (BHS), which assessed a range of mental health problems and behaviors, including bullying, depression, and suicide.

RESULTS:

All types of bullying were associated with suicide risk, but verbal bullying was uniquely associated with suicide attempt. Depression significantly moderated the relationship between each type of bullying and suicide risk.

CONCLUSION:

The study's limitations include the use of cross-sectional and self-data reports. When medical providers evaluate suicide risk, bullying should be considered as a possible precipitant, especially if the patient is depressed. Verbal bullying may be particularly important in understanding severity of suicide risk.

KEYWORDS:

adolescents; bullying; depression; primary care; suicide risk

Shearer, A., Russon, J., Herres, J., Atte, T., Kodish, T., & Diamond, G. (2015). The relationship between disordered eating and sexuality amongst adolescents and young adults. *Eating Behaviors*, 19, 115-119. doi:0.1016/j.eatbeh.2015.08.001

Research shows that gay and bisexual males are at increased risk for disordered eating symptoms (DES); however, studies examining DES amongst lesbians and bisexual women have produced mixed findings. Furthermore, few studies have included questioning or "unsure" individuals. This study examined DES symptoms in adolescents and young adults across self-reported sexual attraction and behavior. Participants were recruited from ten primary care sites in Pennsylvania and administered the Behavioral Health Screen (BHS) – a web-based screening tool that assesses psychiatric symptoms and risk behaviors – during a routine visit. As expected, males who were attracted to other males exhibited significantly higher disordered eating scores than those only attracted to members of the opposite sex. Males who engaged in sexual activities with other males also exhibited significantly higher scores than those who only engaged in sexual activities with females. Amongst females, there were no significant differences in DES scores between females who were only attracted to females and those only attracted to males. Those who reported being attracted to both sexes, however, had significantly higher scores, on average, than those only attracted to one sex. More surprisingly, females who were unsure of who they were attracted to reported the highest DES scores of all. These findings are contrary to previous assumptions that same-sex attraction plays a protective role against eating pathology in females. Females who are unsure or attracted to both sexes may actually be at increased risk for developing DES.

Davey MP, Bilkins B, Diamond G, Willis AI, Mitchell EP, Davey A, Young FM. (2015). African American Patients' Psychosocial Support Needs and Barriers to Treatment: Patient Needs Assessment. *J Cancer Educ.* 2015 Jun 7.

This study assessed adult patient's psychosocial support needs and treatment barriers in an urban diverse cancer center. A needs assessment was conducted with a convenience sample of adult oncology patients (n=113; 71.7 % African American). Most patients were parenting school-age children and worried about them (96 %); 86.7 % would attend a family support program. Among patients who were married or partnered (68 %), 63.7 % were concerned about communication, coping, and emotional support; 53.9 % would attend a couple support program. Patients identified similar treatment barriers: transportation, babysitting for younger children, convenience of time/place, and refreshments. Findings suggest that behavioral health care providers should be available to screen cancer patients and improve access to appropriate

psychosocial oncology support programs.

Jenkins, A. L., Singer, J., Conner, B. T., Calhoun, S., & Diamond, G.S. (2014). Risk for suicidal ideation and attempt among a primary care sample of adolescents engaging in nonsuicidal self injury. *Suicide and Life-Threatening Behavior*, 44(6), 616-628.

One in five adolescents in the United States has engaged in nonsuicidal self injury (NSSI), one in eight have had serious thoughts of suicide, and one in 25 have attempted suicide. Research suggests that NSSI may increase risk for suicide at tempt, yet little is known about the relationship between NSSI and suicidal ideation or attempts. In a primary care setting, 1,561 youth aged 14–24 years completed a brief, comprehensive, mental health screen as part of a routine well visit to determine which factors were most likely to predict suicidal ideation and attempt among youth engaging in NSSI. Results of recursive partitioning revealed that current depression and history of alcohol use best differentiated youth engaging in NSSI with low versus high risk for suicidal ideation and attempts. This simple algorithm is presented as a clinical screening tool that might aid medical providers in determining which youth would benefit from more intensive assessment and intervention.

Wintersteen, M.B. & Diamond, G.S. (2013). Youth Suicide Prevention in Primary Care: A Model Program and Its Impact on Psychiatric Emergency Referrals. *Clinical Practice in Pediatric Psychology*, 1(3), 295-305.

Primary care is an emerging setting for suicide prevention efforts. Psychologists can play a valuable role in not only consulting to primary care but also assisting with the management of suicidal youth. This article describes the Pennsylvania Youth Suicide Prevention in Primary Care model. After detailing the model, a brief study is reported whereby the intervention of primary care staff training, screening, and available services on referrals to the emergency department (ED) for evaluation and the rate of psychiatric hospitalization following psychiatric evaluation in the ED for these youth are examined. Results demonstrated a reduction in referrals to the ED in the year after the intervention compared to 3 years pre-intervention. Implications for mental health professionals working in primary care are discussed.

Diamond, G.S, O'Malley, A., Wintersteen, M.B., Peters, S., Yunghans, S., Biddle, V., O'Brien, C. & Schrand, S. (2012). Attitudes, Practices, and Barriers to Adolescent Suicide and Mental Health Screening: A Survey of Pennsylvania Primary Care Providers. *Journal of Primary Care & Community Health*, 3(1), 29-35.

OBJECTIVE:

To determine primary care providers' rates of screening for suicide and mental health problems in adolescents and the factors that promote or discourage this practice.

PATIENTS AND METHODS:

Overall, 671 medical professionals (ie, pediatricians, family physicians, nurse practitioners, physician assistants) completed an electronic survey. The 53 items focused on (1) attitudes, knowledge, and comfort with general psychosocial and suicide screening and (2) current practices and barriers regarding screening and referrals to behavioral health services.

RESULTS:

Forty percent had a patient attempt suicide in the past year, and 7.7% had 6 or more patients attempt suicide. At a well visit, 67% screened for mental health, and 35.2% screened for suicide risk. Most (61.1%) primary care providers rarely screened for suicide or only when it was indicated. Only 14.2% of primary care providers often used a standardized suicide screening tool. Factors associated with screening were being knowledgeable about suicide risk, being female, working in an urban setting, and having had a suicidal patient. Only 3.0% reported adequate compensation for these practices, and 44% agreed that primary care providers frequently use physical health billing codes for behavioral health services. Nearly 90% said parent involvement was needed if adolescents were to follow through with referrals to mental health services. Only 21% frequently heard back from the behavioral health providers after a referral was made.

CONCLUSION:

Policy that promotes mental health education for primary care providers, provides reimbursement for mental health screening, and encourages better service integration could increase suicide screening and save healthcare costs and patients' lives.

Bevans, K.B., Diamond, G., Levy, S. (2012). Screening for Adolescents' Internalizing Symptoms in Primary Care: Item Response Theory Analysis of the Behavior Health Screen Depression,

Anxiety, and Suicidal Risk Scales. *Journal of Developmental and Behavioral Pediatrics*, 33, 283-290.

OBJECTIVE:

To apply a modern psychometric approach to validate the Behavioral Health Screen (BHS) Depression, Anxiety, and Suicidal Risk Scales among adolescents in primary care.

METHODS:

Psychometric analyses were conducted using data collected from 426 adolescents aged 12 to 21 years (mean = 15.8, SD = 2.2). Rasch-Masters partial credit models were fitted to the data to determine whether items supported the comprehensive measurement of internalizing symptoms with minimal gaps and redundancies.

RESULTS:

Scales were reduced to ensure that they measured singular dimensions of generalized anxiety, depressed affect, and suicidal risk both comprehensively and efficiently. Although gender bias was observed for some depression and anxiety items, differential item functioning did not impact overall subscale scores. Future revisions to the BHS should include additional items that assess low-level internalizing symptoms.

CONCLUSIONS:

The BHS is an accurate and efficient tool for identifying adolescents with internalizing symptoms in primary care settings. Access to psychometrically sound and cost-effective behavioral health screening tools is essential for meeting the increasing demands for adolescent behavioral health screening in primary/ambulatory care.

Cronholm, P.F., Barg, F.K., Pailler, M.E., Wintersteen, M.B., Diamond, G., & Fein, J.A. (2010). Adolescent depression: Views of health care providers in a pediatric emergency setting. *Pediatric Emergency Care*, 26, 111-117.

OBJECTIVE:

Pediatric emergency department (PED) providers are strategically positioned to identify adolescents with depression. Our objectives were to describe health care providers' perspectives on adolescent depression and the role of depression screening in the PED.

METHODS:

We conducted semistructured interviews with 41 health care providers from an urban, academic PED (including PED attending physicians and trainees, social workers, and psychiatrists). Interviews were audiotaped, transcribed, and entered into the N6 qualitative data analysis software version 6 (QSR International Pty Ltd, Cambridge, Mass) for coding and analysis. A multidisciplinary team used content analysis to identify 2 primary domains: (1) provider attitudes about adolescent depression and (2) factors associated with adolescent depression screening processes in a PED setting.

RESULTS:

The PED-based providers demonstrated a clear understanding of the clinical burden of adolescent depression but described complex individual and system-level barriers to addressing the issue. All providers recognized the high prevalence of adolescent depression and its impact on health and described adolescent depression as a moderate-to-large problem that was greatly underrecognized but applied primarily as a biomedical model for treatment options. The respondents endorsed computerized screening as a useful approach. Concerns were raised universally regarding the ability of the health care system to respond to screened adolescents found to be depressed.

CONCLUSIONS:

The study describes the perspectives of multiple, key stakeholders necessary for a system response to the identification, assessment, and management of adolescent depression in the PED. The PED providers were generally supportive of computerized depression screening in the PED setting but also voiced the need for system-level responses that facilitate access to quality mental health care services for adolescents.

Diamond, G.S., Levy, S.A., Bevans, K.B., Fein, J.A., Wintersteen, M.B., Tien, A., & Creed, T.A. (2010). Development, validation and utility of the web-based Behavioral Health Screen for adolescents in ambulatory care. *Pediatrics*, 26(e163-e170).

OBJECTIVES:

The goals were to develop and to validate the Internet-based, Behavioral Health Screen (BHS) for adolescents and young adults in primary care.

METHODS:

Items assessing risk behaviors and psychiatric symptoms were built into a web-based platform with broad functionality. Practicality and acceptability were examined with 24 patients. For psychometric validation, 415 adolescents completed the BHS and well-established rating scales. Participants recruited from primary care waiting rooms were 12 to 21 years of age (mean: 15.8 years); 66.5% were female and 77.5% black.

RESULTS:

The BHS screens in 13 domains by using 54 required items and 39 follow-up items. The administration time was 8 to 15 minutes (mean: 12.4 minutes). The scales are unidimensional, are internally consistent (Cronbach's alpha = 0.75-0.87), and discriminate among adolescents with a range of diagnostic syndromes. Sensitivity and specificity were high, with overall accuracy ranging from 78% to 85%. Patients with scores above scale cutoff values for depression, suicide risk, anxiety, and posttraumatic stress disorder symptoms were > or =4 times more likely to endorse other risk behaviors or stressors.

CONCLUSIONS:

The BHS addresses practical and clinical barriers to behavioral health screening in primary care. It is a brief but comprehensive, self-report, biopsychosocial assessment. The psychiatric scales are valid and predictive of risk behaviors, which facilitates exclusion of false-positive results, as well as assessment and triage.

Fein, J.A., Pailler, M.E., Frances, K., Barg, F.K., Wintersteen, M.B., Katie Hayes, K., & Diamond, G.S. (2010). Feasibility and impact of a web-based adolescent psychiatric assessment administered by clinical staff in the pediatric emergency department. *Archives of Pediatric and Adolescent Medicine*.164(12), 1112-1117.

OBJECTIVES:

To determine the adoption rate of the web-based Behavioral Health Screening-Emergency Department (BHS-ED) system during routine clinical practice in a pediatric ED, and to assess this system's effect on identification and assessment of psychiatric problems.

DESIGN:

Descriptive design to evaluate the feasibility of a clinical innovation.

SETTING:

The ED of an urban tertiary care children's hospital.

PARTICIPANTS:

Adolescents from 14 to 18 years of age, without acute or critical injuries or illness, presenting with non psychiatric symptoms.

INTERVENTION:

The ED clinical staff initiated the use of the BHS-ED system, which identifies and assesses adolescents for depression, suicidal ideation, posttraumatic stress, substance use, and exposure to violence. Treating clinicians reviewed results and followed routine care practices thereafter.

MAIN OUTCOME MEASURES:

Adoption rate of the BHS-ED system by nursing staff, identification rates of occult psychiatric problems, and social worker or psychiatrist assessment. Data were collected for 19 months before implementation of the BHS-ED system and for 9 months during implementation.

RESULTS:

Of 3979 eligible patients, 1327 (33.4%) were asked by clinical staff to get screened using the BHS-ED; of these 1327 patients, 857 (64.6%) completed the screening and 470 (35.4%) refused. During implementation, identification of adolescents with psychiatric problems increased significantly (4.2% vs 2.5%; odds ratio [OR], 1.70; 95% confidence interval [CI], 1.38-2.10), as did ED assessments by a social worker or psychiatrist (2.5% vs 1.7%; OR, 1.47; 95% CI, 1.13-1.90). Of the 857 patients who were screened with the BHS-ED, 90 (10.5%) were identified as having psychiatric problems (OR, 4.58; 95% CI, 3.53-5.94), and 71 (8.3%) were assessed (OR, 5.12; 95% CI, 3.80-6.88).

CONCLUSIONS:

In a busy pediatric ED, computerized, self-administered adolescent behavioral health screening can be incorporated into routine clinical practice. This can lead to small but significant increases in the identification of unrecognized psychiatric problems.

Wintersteen, M.B. (2010). Standardized Screening for Suicidal Adolescents in Primary Care. *Pediatrics*, 125, 938-944.

OBJECTIVE: To determine if brief standardized screening for suicide risk in pediatric primary care practices will increase detection rates of suicidal youth, maintain increased detection and referral rates, and be replicated in other practices.

PATIENTS AND METHODS: Physicians in 3 primary care practices received brief training in suicide risk, and 2 standardized questions were inserted into their existing electronic medical chart psychosocial interview. The questions automatically populated for all adolescents aged 12.0 to 17.9 years. Deidentified data were extracted during both intervention trials and for the same dates of the previous year. Referral rates were extracted from social work records.

RESULTS: The rates of inquiry about suicide risk increased 219% (clinic A odds ratio [OR]: 2.04 [95% confidence interval (CI): 1.56–2.51]; clinic B OR: 3.20 [95% CI: 2.69–3.71]; clinic C OR: 1.85 [95% CI: 1.38–2.31]). The rate of case detection increased in clinic A (OR: 4.99 [95% CI: 4.20–5.79]), was maintained over 6 months after the intervention began (OR: 4.38 [95% CI: 3.74–5.02]), and was replicated in both clinic B (OR: 5.46 [95% CI: 3.36–7.56]) and clinic C (OR: 3.42 [95% CI: 2.33–4.52]). The increase in case detection was 392% across all 3 clinics. Referral rates of suicidal youth to outpatient behavioral health care centers increased at a rate equal to that of the detection rates.

CONCLUSIONS: Standardized screening for suicide risk in primary care can detect youth with suicidal ideation and prompt a referral to a behavioral health care center before a fatal or serious suicide attempt is made.

Pailer, M. E., Cronholm, P. F., Barg, F. K., Wintersteen, M. B., Diamond, G.S., & Fein, J. A. (2009). Patients' and caregivers' beliefs about depression screening and referral in the emergency department. *Pediatric Emergency Care*, 25(11), 721-727.

OBJECTIVES:

To explore patients' and parents'/caregivers' beliefs about the acceptability of universal depression screening in the emergency department (ED) and their perceptions of the barriers and facilitators to a mental health referral following a positive screen.

METHODS:

We conducted semistructured interviews with 60 patients seeking care and 59 caregivers in the ED of an urban children's hospital. Interviews were audiotaped, transcribed, coded, and entered into N6 (version 6.0; QSR, Thousand Oaks, Calif) for coding and content analysis.

RESULTS:

Patients and caregivers supported the idea of depression screening in the ED, generally viewing screening as a reflection of care and concern. Respondents reported apprehension about stigma, privacy, and provider sensitivity. Introducing the screening concept early in the visit and as part of routine care was believed to reduce stigma. Respondents generally indicated that although they would likely follow through with a referral if given, stigma and denial were viewed as significant barriers. Caregivers also reported that logistical problems such as transportation, insurance, and agency hours created barriers to help seeking, but this could be offset by social support and information about the agency and the provider.

CONCLUSIONS:

Patients and caregivers generally support depression screening in the pediatric ED but identified several barriers to screening and referral for treatment. Recommendations include introduction of universal screening early in the ED visit, provision of specific information about the meaning of screening results, and support from family and health care providers to help reduce stigma and increase referral acceptability.

Pailer, M.E. & Fein, J.A. (2009). Computerized behavioral health screening in the emergency department. *Pediatric Annals*, 38(3), 156-160.

The rate of untreated mental health problems among children and adolescents has increased over the past decade, and it is estimated that 70% of children in need do not receive mental health services. Untreated, mental health problems place children at risk for poor school performance and social isolation, and in some cases can lead to adult psychopathology and suicide. Routine screening in medical settings has been recommended as a mechanism for identifying adolescents with unmet mental health needs. The American Academy of Pediatrics (AAP) has acknowledged the role of the emergency department (ED) as a safety net for children and adolescents with unmet mental health needs and recommended the development of accurate mental health screening tools and best practices for follow-up programs for pediatric patients.

Wintersteen, M.B., Diamond, G.S., & Fein, J.A. (2007). Screening for suicide risk in the pediatric emergency and acute care setting. *Current Opinion in Pediatrics*, 19(4),398-404.

PURPOSE OF REVIEW:

This paper reviews epidemiology, psychiatric comorbidities, risk factors, warning signs, screening measures, and issues related to screening for suicide risk in the pediatric emergency department and acute care settings.

RECENT FINDINGS:

For the first time in over a decade, rates of adolescent suicide are increasing. A recent review found physician gatekeeper training to be one of only two effective prevention strategies. Limited methods exist to assess for suicide risk in pediatric acute care settings that are able to meet the demands and challenges presented in time-limited medical settings.

SUMMARY:

Suicide is the third leading cause of death in adolescents. Although a prior suicide attempt is the single most important risk factor, affective, cognitive, family and peer factors also affect risk of completed suicide. Practitioners in the acute care and emergency department setting are well positioned to identify, assess, and appropriately refer these adolescents and their families. Screening instruments in this setting need to be accurate, brief, and relevant to patients, families, and providers. We propose a two-question algorithm that targets imminent risk for a suicide attempt. This type of screening also needs to be accompanied by hospital or community-based support systems for further assessment, intervention and follow-up.