Retrospective Chart Review of the Triage Algorithm for Psychiatric Screening (TAPS) for Patients Who Present to Emergency Departments With Psychiatric Chief Complaints

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Background

- There is a growing number of mental health illnesses (MHIs) in the nation and no standardization of the medical screening examination (MSE) in the emergency department.
- Many health care organizations are at the tipping point of discarding a battery of laboratory workups. A triage tool—specific to psychiatric chief complaints and cost effective—is needed for the emergency department.

Purpose

- The purpose of this quality improvement project is to replicate the Miller et.al (2012) study and evaluate if the TAPS tool can identify patients with an absence of a serious medical illness at a community teaching hospital ED with an inpatient psychiatric unit.
- A retrospective overlay of the TAPS tool onto the previous patients' records was performed to see if it would be valuable to implement into the triage process.

Procedures

- A non-experimental, retrospective chart review was performed to determine a TAPS score based upon the TAPS tool on arrival to triage of the ED.
- All sample patients were assigned a TAPS score and had their medical treatment traced for a three-month period to discern if any tests had clinically meaningful results consistent with acute medical illness.
- The sensitivity and specificity of the TAPS tool, overall LOS, and associated cost of a Behavioral Emergency Protocol was evaluated.

Methods

Design: Non-experimental, retrospective overlay of the TAPS tool

Style: Convenience Sampling

Designated Criteria: community ED (with inpatient psych unit), arrival date (7/31/15 – 1/31/17), 18 years or older, mental illness (problem group), and non-pregnant

Sample Selection: DEDUCE research tool

Timeline: 3-month period

Sample Size: 155

Statistical Analysis

- IBM SPSS statistical software
- Alpha 0.05
- G*power analysis: 26 charts minimum
- Sensitivity 52 charts & specificity 54 charts minimum
- Chi square tests examined the association between TAPS scores and laboratory results
- Sensitivity & Specificity were calculated for each TAPS scores
- Spearman's rho correlation was conducted to determine if TAPS scores were related to LOS
- The total cost for each patient was computed, and then average cost for each TAPS score was calculated

Results

Table 1. Descriptive statistics (n, %) for TAPS Score

TAPS Score	*n*	%
0	33	32.7
1	31	30.7
2	26	25.7
3	8	7.9
4	2	2.0
5	1	1.0

Table 3. *Mean (SD)* for Vital Signs by TAPS Score

Variable	TAPS Score 0	1	2	3	4	5	P value
Temperature, mean (SD)	98.22 (.41)	98.27 (.44)	98.24 (.47)	98.31 (.63)	98.85 (.35)	97.7 (.)	.392
Pulse, mean (SD)	81.06 (11.00)	93.33 (14.82)	93.23 (16.27)	94 (17.93)	111 (4.24)	108 (.)	.001
RR, mean (SD)	18.16 (1.97)	18.93 (6.18)	18.36 (2.06)	17.75 (1.28)	17 (1.41)	24 (.)	.653
Systolic BP, mean (SD)	132.12 (16.50)	137.23 (19.98)	130.96 (14.33)	154 (29.11)	151 (21.21)	102 (.)	.011
Diastolic BP mean (SD)	82.42 (12.86)	83.67 (11.92)	79.54 (12.01)	96.25 (14.18)	93 (29.7)	68 (.)	.027
02 saturation, mean (SD)	98.3 (1.61)	98.34 (1.54)	97.35 (2.12)	97.14 (2.04)	96 (4.24)	100 (.)	.074

Table 4. Sensitivity Rates* for Lab Results by TAPS Score

TAPS Score	CBC	BMP	i-STAT™	Urinalysis	SDS	UDS	Glucose
0	0	.4	0	0	0	.4	0
1	1.0	.60	.50	0	0	.20	0
2	0	0	.50	0	.50	.40	1
3	0	0	0	0	0	0	0
4	0	0	0	0	.50	0	0
5	0	0	0	0	0	0	0

* Sensitivity is correctly identifying those with clinically significant labs

Table 5. Specificity Rates* for Lab Results by TAPS Score

TAPS Score	CBC	BMP	i-STAT™	Urinalysis	SDS	UDS	Glucose
0	.67	.677	.667	.663	.663	.677	.667
1	.70	.708	.696	.285	.683	.687	.686
2	.74	.729	.747	.734	.755	.75	.7575
3	.92	.917	.919	.918	.918	.917	.919
4	.98	.979	.979	.979	.989	.979	.979
5	.99	.989	.989	.989	.989	.989	.989

*Specificity is correctly identifying those with not clinically significant labs

Table 6. Average Day Cost* by TAPS Score

TAPS Score	*n*	*Mean* (dollars)	*SD* (dollars)
0	33	1887.42	1180.999
1	31	5632.03	9931.553
2	26	2819.00	2503.174
3	8	2370.38	2067.525
4	2	4871.50	1673.722
5	1	7376.00	.
Total	101	3428.26	5882.459

*Average day cost was multiplied by the number of days in ED

Implications

- The results of this project represent a valuable step forward in improving the triage of adult patients who present to the emergency department with psychiatric chief complaints.
- A reproducible study of the TAPS method was the next practice step in determining feasibility.
- Use of the TAPS tool can be a method to decease costs and ED crowding.
- For research and quality improvement projects in the future, addiction chief complaints should be treated as a separate category from psychiatric or medical complaints, as they meet the criteria of both.

Conclusions

- The TAPS tool can be used reliably to rule out acute medical illness in patients with psychiatric chief complaints in community hospital settings with on-site inpatient psychiatric units.
- The TAPS tool appropriately identified low-acuity patients without significant medical illness (TAPS of 0).
- Addiction chief complaints was a confounding variable because these patients often had mental health complaints in addition to medical complaints. The TAPS tool is a simple and cost-effective tool to use in the emergency department during triage.
- The TAPS tool could be used in selected settings to expedite psychiatric care and reduce unnecessary laboratory testing

Limitations

- The DEDUCE tool was technical to utilize
- There was a transition from the ICU-9 codes in October 2015 to the ICU-10 codes
- A problem group was selected rather than individual ICD codes
- 2 patients did not self-report drug use
- Addiction ICD codes often met both medical and psychiatric criteria

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