

Children's Mercy Kansas City

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Presentations

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The Effect of COVID-19 on the Detection and Prevalence of Suicidality in Adolescents

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The Effect of COVID-19 on Suicide Risk in Adolescents

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Background

- Suicide is 2nd leading cause of death in teens in the US
 - According to the Centers for Disease Control and Prevention (CDC), >48,000 youths (ages 10-24) took their own lives in 2018.
- Anecdotal reports – and some studies – suggest that teen suicide rates have increased during the COVID pandemic.

Leading Cause of Death in the United States (2016)



Data Courtesy of CDC

Select Age Groups							
Rank	10-14	15-24	25-34	35-44	45-54	55-64	All Ages
1	Unintentional Injury 847	Unintentional Injury 13,895	Unintentional Injury 23,984	Unintentional Injury 20,975	Malignant Neoplasms 41,291	Malignant Neoplasms 116,364	Heart Disease 635,260
2	Suicide 436	Suicide 5,723	Suicide 7,366	Malignant Neoplasms 10,903	Heart Disease 34,027	Heart Disease 78,610	Malignant Neoplasms 598,038
3	Malignant Neoplasms 431	Homicide 5,172	Homicide 5,376	Heart Disease 10,477	Unintentional Injury 23,377	Unintentional Injury 21,860	Unintentional Injury 161,374
4	Homicide 147	Malignant Neoplasms 1,431	Malignant Neoplasms 3,791	Suicide 7,030	Suicide 8,437	CLRD 17,810	CLRD 154,596
5	Congenital Abnormalities 146	Heart Disease 949	Heart Disease 3,445	Homicide 3,369	Liver Disease 8,364	Diabetes Mellitus 14,251	Cerebro-vascular 142,142
6	Heart Disease 111	Congenital Anomalies 388	Liver Disease 925	Liver Disease 2,851	Diabetes Mellitus 6,267	Liver Disease 13,448	Alzheimer's Disease 116,103
7	CLRD 75	Diabetes Mellitus 211	Diabetes Mellitus 792	Diabetes Mellitus 2,049	Cerebro-vascular 5,353	Cerebro-vascular 12,310	Diabetes Mellitus 80,058
8	Cerebro-vascular 50	CLRD 206	Cerebro-vascular 575	Cerebro-vascular 1,851	CLRD 4,307	Suicide 7,759	Influenza & Pneumonia 51,537

Children's Mercy screening program

- In 2018, after a five-year planning process, our hospital began a screening program for all teens.
- Followed Joint Commission recommendation.
- Included inpatient, outpatient, and ED
- At each visit (but no more than once/month) teens were asked to answer four questions on the ASQ suicide screen.

ASQ (yes/no) questions

- In the past few weeks, have you wished you were dead?
- In the past few weeks, have you felt that you or your family would be better off if you were dead?
- In the past week, have you been having thoughts about killing yourself?
- Have you ever tried to kill yourself?

If yes, how? When?

If the patient answers yes to any of the above, ask the following question:

- **Are you having thoughts of killing yourself right now?** Yes No

If yes, please describe:

Ask Suicide Screening Questions

Suicide screen last date completed:
Documented date is in parenthesis

Will screening be completed today? Yes No

Date screening completed:

- 1. In the past few weeks, have you wished you were dead? Yes No
- 2. In the past few weeks, have you felt that you or your family would be better off if you were dead? Yes No
- 3. In the past week, have you been having thoughts about killing yourself? Yes No

History of suicide attempt:
Documented date is in parenthesis

4. Have you ever tried to kill yourself? Yes No

When/Date? How?
(Optional)

Have you tried to kill yourself since (state last date)? Yes No

When/Date? How?
(Optional)

5. Are you having thoughts of killing yourself right now? Yes No [Right click to view reference material](#)

If patient answers YES to #5
1. Observation 1:1 will be ordered automatically
2. Initiate Observation 1:1 Suicide Precautions
3. Page Social Work immediately
4. Complete Suicide Risk Precautions form

If patient answers NO to #5
Page Social Work if any yes
(except for previously documented suicide attempt)

*For form calculation purposes only

Screening built into EHR and RedCap

Responses

- Considered positive if answered "yes" to any of the questions
- All patients who screened positive were evaluated by SW
- Possible responses
 - Counseling about means restriction at home
 - Referral for outpatient psychotherapy or medication
 - Inpatient admission

First year: 2019

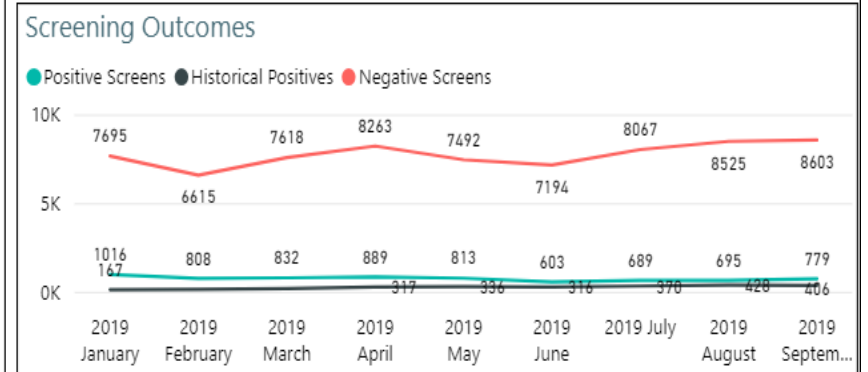
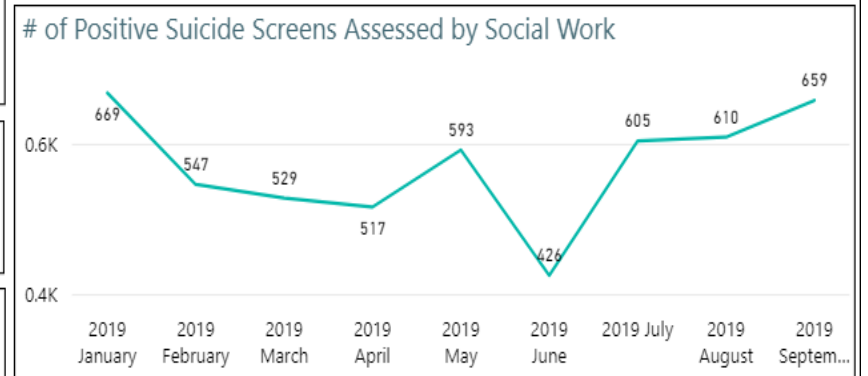
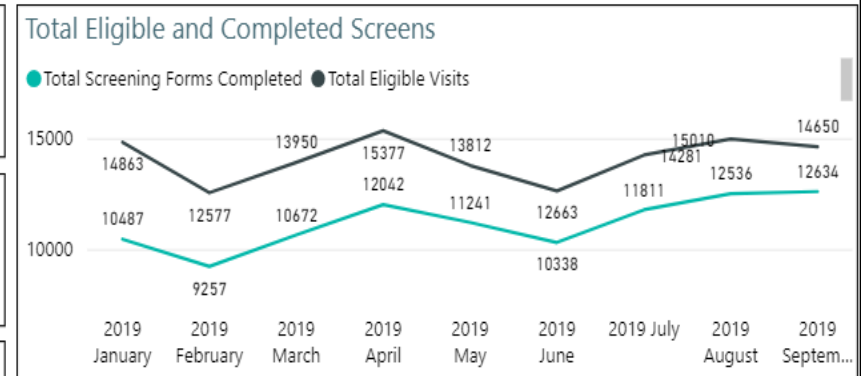
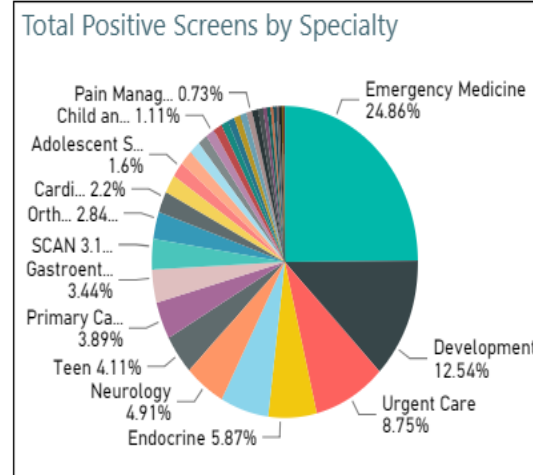
- 138,598 screens.
- Positivity rate 8.9%

101018
Total Screens Completed

7124
Total Positive Screens

8.9%
Positive Rate

79.4%
Eligible Screen Percentage



Then COVID happened

Changes as a result of COVID

- Many outpatient clinics curtailed services
- Rapid rise in telemedicine
- Schools closed to in-person education -> isolation
- Effects on suicidality?

Study questions

- Did more teens think about suicide during the first months of the pandemic than before the pandemic?
- Did screening work when used as part of telemedicine?
 - Did rates of screening go down?
 - Did rates of positive screens go up?
- We compared April-June results in 2019 and 2020

Statistical analysis

- Generalized linear mixed-effects models (GLMM) with the fixed-effect coefficient marginalized.

April-June 2019 vs 2020

- 2019:
 - 24,860 patients had 38,455 visits
 - 15 (0.04%) visits were by telemedicine.
- 2020:
 - 16,359 patients had 24,073 visits
 - 3,372 (26.7%) visits were by telemedicine.

Fewer eligible patients were screened

- 2019:
 - 66.4% of eligible patients screened
- 2020:
 - 55.8% of eligible patients screened
 - $z = -26.1, p < 0.001$.

Fewer screenings in telemedicine

- Eligible patients screened during 2020
 - Telemedicine visits: 39%
 - In-person visits: 65%
($z = -39.2, p < 0.001$).

Positivity rates

- Among all completed screens:

- 10.7% positive in 2019

- 12.1% positive in 2020

OR 1.15, 95% CI: 1.09, 1.20; $z = 5.5$, $p < 0.001$.

Positivity rates

- Positives lower in telemedicine than in-person visits
 - 10.8% in telemedicine
 - 12.8% in in-person
 - OR 0.82, 95% CI: 0.74, 0.92; $z = -3.4$, $p < 0.001$.

Multivariate GLMM analysis

Main-effects GLMM: marginalized coeff.

	Estimate	Std.Err	z.value	p.value	OR	OR.lo	OR.up
(Intercept)	-3.020	0.107	-28.192	0.000	0.05	0.04	0.06
age	0.058	0.006	9.025	0.000	1.06	1.05	1.07
sexMale	-0.810	0.053	-15.192	0.000	0.44	0.40	0.49
race2Black	-0.166	0.050	-3.337	0.001	0.85	0.77	0.93
race2Others	-0.211	0.050	-4.219	0.000	0.81	0.73	0.89
ins1Public	0.588	0.040	14.756	0.000	1.80	1.67	1.95
ins1Self.Pay	0.370	0.065	5.647	0.000	1.45	1.27	1.65
Year2020	0.137	0.033	4.132	0.000	1.15	1.07	1.22
Month5	0.027	0.036	0.759	0.448	1.03	0.96	1.10
Month6	-0.086	0.035	-2.453	0.014	0.92	0.86	0.98
enc_typeER	0.399	0.032	12.498	0.000	1.49	1.40	1.59
enc_typeInpatient	0.497	0.065	7.612	0.000	1.64	1.45	1.87

Rates of positive screens...

- ...Lower in males than females (OR: 0.44, $z = -15$, $p < 0.001$)
- ...Lower in Blacks than all others (OR: 0.85, $z = -3.3$, $p = 0.001$)
- ...Higher with each year of age (OR 1.06, $z = 9.0$, $p < 0.001$)
- ...Higher for public insurance than private (OR: 1.8, $z = 14.8$, $p < 0.001$)

Conclusions

- In the early months of the COVID-19 pandemic
 - Fewer overall visits
 - Fewer eligible patients screened during visits
 - 10% increase positive suicide screens
 - Higher in girls, older teens, and those with public insurance
 - Lower in Blacks
- Screening by telemedicine was difficult to implement.

Caveats

- Higher positive suicide screen rates could indicate
 - Higher risk patients more likely to keep appointments,
 - More stressed patients chose to keep appointments.
 - Suicide risk among teens increased



Opinion

I Don't Want Another Family to Lose a Child the Way We Did

[https://www.nytimes.com/
2021/03/25/opinion/suicide-
prevention.html](https://www.nytimes.com/2021/03/25/opinion/suicide-prevention.html)

The thought of suicide is terrifying, but we have to make talking about it a part of everyday life.

Thanks