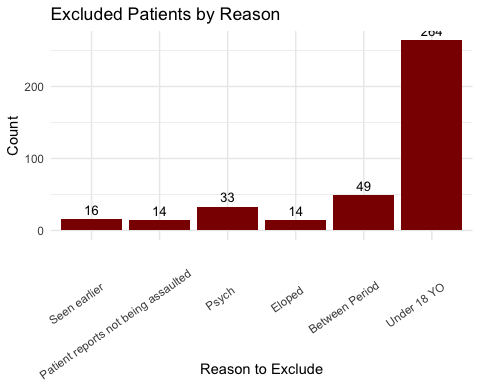
SA Paper 1 Analysis

Table of Contents

## Prep Code

library(readr)  
library(logistf)  
library(tidyverse)  
library(lubridate)  
library(gtsummary)  
library(gt)  
library(parsedate)  
library(janitor)  
library(labelled)  
library(parameters)  
library(survival)  
library(ggsurvfit)  
library(table1)  
library(hms)  
library(readxl)  
library(ggborderline)  
theme\_gtsummary\_journal(journal = "jama")  
theme\_gtsummary\_compact()  
load(  
 "~/Documents/Current\_Projects/Sexual\_Assault/new\_SA\_YNHH/Updated YNHH SA code/all\_pts.RData"  
)  
# set TZ to east coast standard  
time\_zone <- "America/New\_York"  
#pathway went live on 7/13/21  
pathway\_start <- mdy("7/13/21", tz = time\_zone)  
#Story board notification went live on 9/8/21  
sb\_start <- mdy("9/8/21", tz = time\_zone)  
day.arrival.start <- hms::as\_hms("03:00:00")  
night.arrival.start <- hms::as\_hms("15:00:00")  
all\_pts$insurance\_3 <- as\_factor(all\_pts$insurance\_3)  
all\_pts$insurance\_3 <- relevel(all\_pts$insurance\_3, ref = "Public")  
all\_pts <- all\_pts %>% mutate(  
 race\_eth = case\_when(  
 patient\_ethnicity == "Hispanic or Latina/o/x" ~ "Hispanic or Latina/o/x",  
 patient\_race == "Black or African American" ~ "Non-Hispanic Black",  
 patient\_race == "White" ~ "Non-Hispanic White",  
 patient\_ethnicity != "Hispanic or Latina/o/x" &  
 patient\_race != "Black or African American" &  
 patient\_race != "White" ~ "Other",  
 .default = patient\_race  
 )  
 ) %>%   
 mutate(  
 race\_eth\_num = case\_when(  
 race\_eth == "Non-Hispanic White" ~ 0,  
 race\_eth == "Non-Hispanic Black" ~ 1,  
 race\_eth == "Hispanic or Latina/o/x" ~ 3,  
 race\_eth == "Other" ~ 4  
 )  
 ) %>%   
 set\_value\_labels(  
 race\_eth\_num = c(  
 "Non-Hispanic White" = 0,  
 "Non-Hispanic Black" = 1,  
 "Hispanic or Latina/o/x" = 3,  
 "Other" = 4  
 )  
 )  
all\_pts$race\_eth\_num <- to\_factor(all\_pts$race\_eth\_num, ordered = FALSE)  
all\_excluded <- all\_pts %>%  
 mutate(exclude = case\_when(age < 18 ~ 1,  
 between == 1 ~ 1,  
 sane\_kit\_done == 4 ~ 1,  
 exclude == 1 ~ 1)) %>%  
 mutate(  
 reason\_to\_exclude = case\_when(  
 age < 18 ~ 8,  
 is.na(reason\_to\_exclude) & between == 1 ~ 7,  
 is.na(reason\_to\_exclude) & sane\_kit\_done == 4 ~ 3,  
 is.na(reason\_to\_exclude) ~ 6,  
 .default = reason\_to\_exclude  
 )  
 ) %>% add\_value\_labels(  
 reason\_to\_exclude = c(  
 "Seen earlier" = 1 ,  
 "Patient reports not being assaulted" = 2,  
 "Psych" = 3,  
 "not excluded" = 4,  
 "Eloped" = 5,  
 "NA/Not Listed" = 6,  
 "Between Period" = 7,  
 "Under 18 YO" = 8  
 )  
 ) %>% to\_factor()  
all\_excluded <- all\_excluded %>% filter(exclude == 1)  
excluded\_plot <-  
 all\_excluded %>% ggplot(aes(x = reason\_to\_exclude)) + geom\_bar(fill = "darkred") + geom\_text(stat =  
 'count', aes(label = after\_stat(count)), vjust = -0.5, size = 3.5) + theme\_minimal() + labs(x = "Reason to Exclude", y = "Count", title = "Excluded Patients by Reason") + theme(axis.text.x = element\_text(angle = 35, vjust = .6, hjust= .8))  
  
excluded\_plot



all\_excluded %>% group\_by(reason\_to\_exclude) %>% summarise(n = n()) %>% print()

## # A tibble: 6 × 2  
## reason\_to\_exclude n  
## <fct> <int>  
## 1 Seen earlier 16  
## 2 Patient reports not being assaulted 14  
## 3 Psych 33  
## 4 Eloped 14  
## 5 Between Period 49  
## 6 Under 18 YO 264

number\_of\_minors <-  
 all\_excluded %>% filter(age < 18) #changed it so age is first exclusion criteria  
number\_of\_minors <-  
 n\_distinct(number\_of\_minors$pat\_enc\_csn\_id, na.rm = TRUE) %>% as.character()  
cat(" ", number\_of\_minors, "patients under 18 YO excluded")

## 264 patients under 18 YO excluded

n\_excluded <-  
 all\_excluded %>% filter(  
 reason\_to\_exclude %in% c(  
 "Seen earlier",  
 "Patient reports not being assaulted",  
 "Psych",  
 "Eloped",  
 "NA/Not Listed"  
 )  
 )  
n\_excluded <-  
 n\_distinct(n\_excluded$pat\_enc\_csn\_id, na.rm = TRUE) %>% as.character()  
n\_between <-  
 all\_excluded %>% filter(reason\_to\_exclude == "Between Period")  
n\_between <-  
 n\_distinct(n\_between$pat\_enc\_csn\_id, na.rm = TRUE) %>% as.character()  
  
cat("-", n\_excluded, "patients were excluded based on chart review.")

## - 77 patients were excluded based on chart review.

cat(" ",  
 n\_between,  
 "patients who arrived between 7/13/21 and 9/8/21 were excluded")

## 49 patients who arrived between 7/13/21 and 9/8/21 were excluded

rm(n\_excluded, number\_of\_minors, n\_between)  
#pre-post cohort  
pp.cohort.1 <-  
 all\_pts %>% filter(between == 0) %>% filter(age > 17) %>% filter(is.na(exclude), sane\_kit\_done != 4) %>% mutate(exposure.tab = exposure.char)  
#pathway v no pathway cohort  
cohort.1 <-  
 all\_pts %>% filter(ed\_arrival\_date > sb\_start) %>% filter(age > 17) %>% filter(is.na(exclude)) %>% mutate(exposure.tab = pathway)  
#pre vs no pathway cohort  
pp.cohort.2 <- pp.cohort.1 %>% filter(agile\_md\_used\_num != 1)

942 patient encounters from 2019-12-31 to 2022-12-24  
In order of exclusion: age -> chart review -> between period

## Table 1 and 2

|  | **Post v. Pre** | | | | **Pathway v. No Pathway** | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **Overall**, N = 552 | **Post-intervention**, N = 252 | **Pre-intervention**, N = 300 | **p-value** | **Used Pathway**, N = 128 | **Didn't Use Pathway**, N = 124 | **p-value** |
| Age, Median (IQR) | 27 (21, 38) | 27 (22, 37) | 27 (21, 38) | >0.99*1* | 27 (22, 35) | 27 (21, 39) | 0.57*1* |
| Female, n (%) | 520 (94) | 237 (94) | 283 (94) | 0.89*2* | 117 (91) | 120 (97) | 0.072*2* |
| Race, n (%) |  |  |  | 0.015*2* |  |  | 0.16*2* |
| Non-Hispanic White | 260 (47) | 121 (48) | 139 (46) |  | 54 (42) | 67 (54) |  |
| Non-Hispanic Black | 135 (24) | 47 (19) | 88 (29) |  | 23 (18) | 24 (19) |  |
| Hispanic or Latina/o/x | 118 (21) | 64 (25) | 54 (18) |  | 39 (30) | 25 (20) |  |
| Other | 39 (7.1) | 20 (7.9) | 19 (6.3) |  | 12 (9.4) | 8 (6.5) |  |
| Presented within 120h of assault, n (%) | 504 (91) | 228 (90) | 276 (92) | 0.44*2* | 121 (95) | 107 (86) | 0.026*2* |
| Unknown | 1 | 0 | 1 |  |  |  |  |
| Presented within 72h of assault, n (%) | 453 (82) | 200 (79) | 253 (85) | 0.11*2* | 108 (84) | 92 (74) | 0.046*2* |
| Unknown | 1 | 0 | 1 |  |  |  |  |
| English speaking, n (%) | 527 (95) | 240 (95) | 287 (96) | 0.81*2* | 121 (95) | 119 (96) | 0.59*2* |
| Arrived by EMS, n (%) | 215 (39) | 96 (38) | 119 (40) | 0.71*2* | 52 (41) | 44 (35) | 0.40*2* |
| Diagnosis of Intoxication, n (%) | 196 (36) | 84 (33) | 112 (37) | 0.33*2* | 52 (41) | 32 (26) | 0.013*2* |
| Psychiatric Diagnosis, n (%) | 125 (23) | 41 (16) | 84 (28) | 0.001*2* | 20 (16) | 21 (17) | 0.78*2* |
| Assailant was Intimate Partner, n (%) | 42 (7.6) | 14 (5.6) | 28 (9.3) | 0.10*2* | 7 (5.5) | 7 (5.6) | 0.95*2* |
| *1*Wilcoxon rank sum test | | | | | | | |
| *2*Pearson's Chi-squared test | | | | | | | |

|  | **Post v. Pre** | | | | **Pathway v. No Pathway** | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **Overall**, N = 552 | **Pre-intervention**, N = 300 | **Post-intervention**, N = 252 | **p-value** | **Used Pathway**, N = 128 | **Didn't Use Pathway**, N = 124 | **p-value** |
| Documentation of advocate offerred, n (%) | 322 (58) | 164 (55) | 158 (63) | 0.057*1* | 98 (77) | 60 (48) | <0.001*1* |
| PEP antibiotics ordered, n (%) | 383 (69) | 200 (67) | 183 (73) | 0.13*1* | 108 (84) | 75 (60) | <0.001*1* |
| HIV PEP ordered (if < 72h from assault, n/N (%) | 111/453 (25%) | 35/253 (14%) | 76/200 (38%) | <0.001*1* | 63/108 (58%) | 13/92 (14%) | <0.001*1* |
| Female under 55, n (%) | 492 (89) | 270 (90) | 222 (88) | 0.47*1* | 112 (88) | 110 (89) | 0.77*1* |
| Pregnancy test ordered, n/N (%) | 362/492 (74%) | 191/270 (71%) | 171/222 (77%) | 0.12*1* | 96/112 (86%) | 75/110 (68%) | 0.002*1* |
| Pregnancy prophalaxis ordered, n/N (%) | 204/492 (41%) | 104/270 (39%) | 100/222 (45%) | 0.14*1* | 63/112 (56%) | 37/110 (34%) | <0.001*1* |
| ED with SANE program, n (%) | 285 (52) | 158 (53) | 127 (50) | 0.60*1* | 95 (74) | 32 (26) | <0.001*1* |
| SANE kit done, n (%) |  |  |  | 0.25*2* |  |  | <0.001*2* |
| No | 25 (4.5) | 17 (5.7) | 8 (3.2) |  | 1 (0.8) | 7 (5.6) |  |
| Offered, but declined | 128 (23) | 62 (21) | 66 (26) |  | 25 (20) | 41 (33) |  |
| Outside 120 hr Window | 46 (8.3) | 24 (8.0) | 22 (8.7) |  | 7 (5.5) | 15 (12) |  |
| Yes | 353 (64) | 197 (66) | 156 (62) |  | 95 (74) | 61 (49) |  |
| Under 120 hours and SANE kit done, n/N (%) | 350/504 (69%) | 195/276 (71%) | 155/228 (68%) | 0.52*1* | 95/121 (79%) | 60/107 (56%) | <0.001*1* |
| Has after discharge follow up, n (%) | 515 (93) | 273 (91) | 242 (96) | 0.029*1* | 124 (97) | 118 (95) | 0.71*1* |
| *1*Pearson's Chi-squared test | | | | | | | |
| *2*Fisher's exact test | | | | | | | |

## Regression Outcomes

### Primary Outcome: *Advocate Contacted*

advocate.regression<-function(data, exposure){  
 data$advocate\_offered <- as\_factor(data$advocate\_offered )  
 data$advocate\_offered <- relevel(data$advocate\_offered, ref= "No Documentation of Pt Advocate")  
 model <- glm(advocate\_offered ~ exposure + age + race\_eth\_num + ipv+ intoxicated + sane\_ED, family = "binomial", data = data)  
 model.results <- tbl\_regression(model, exponentiate = TRUE) %>% add\_global\_p()  
 return(model.results)  
}

All patients

Table 1: Odds of documentation of offering call to PT advocate

|  | **Post v. Pre** | | **Pathway v. No Pathway** | | **No Pathway v. Pre** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** |
| Exposure | 1.46 (1.02 to 2.10) | 0.039 | 2.52 (1.35 to 4.76) | 0.004 | 0.96 (0.61 to 1.50) | 0.85 |
| Age | 0.99 (0.97 to 1.00) | 0.12 | 0.99 (0.97 to 1.01) | 0.31 | 0.99 (0.97 to 1.00) | 0.12 |
| Race and Ethnicity |  | 0.53 |  | 0.45 |  | 0.47 |
| Non-Hispanic White | — |  | — |  | — |  |
| Non-Hispanic Black | 0.81 (0.51 to 1.27) |  | 1.31 (0.62 to 2.82) |  | 0.77 (0.47 to 1.26) |  |
| Hispanic or Latina/o/x | 0.96 (0.60 to 1.54) |  | 1.16 (0.58 to 2.33) |  | 0.85 (0.50 to 1.46) |  |
| Other | 1.42 (0.69 to 3.06) |  | 2.56 (0.80 to 9.97) |  | 1.46 (0.64 to 3.52) |  |
| Assailant was Intimate Partner | 1.90 (0.95 to 3.97) | 0.068 | 2.61 (0.72 to 12.5) | 0.15 | 1.69 (0.82 to 3.60) | 0.16 |
| Intoxicated | 0.88 (0.60 to 1.29) | 0.51 | 0.71 (0.38 to 1.30) | 0.26 | 0.91 (0.59 to 1.39) | 0.65 |
| ED with SANE program | 2.99 (2.08 to 4.33) | <0.001 | 2.26 (1.21 to 4.25) | 0.010 | 2.32 (1.53 to 3.55) | <0.001 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | | | | |

### Primary Outcome: *SANE Kit*

note: restricted to pts <120 hours from assault no longer restricted to female (only 12 men) english speakers (only 11 non-english speaking)

no longer including as outcome: Method: *2-Profile penalized log-likelihood*

SANE Kit Offered?

pp.cohort.1.u120 <- pp.cohort.1 %>% filter(under120h == TRUE) %>% mutate(sane\_kit\_offered = if\_else(sane\_kit\_done == 0, "No", "Offered"))  
pp.cohort.1.u120$sane\_kit\_offered <- as\_factor(pp.cohort.1.u120$sane\_kit\_offered)  
pp.cohort.1.u120$sane\_kit\_offered <- relevel(pp.cohort.1.u120$sane\_kit\_offered, ref = "No")  
pp.cohort.1.u120 <- pp.cohort.1 %>% filter(under120h == TRUE) %>% mutate(sane\_kit\_offered = if\_else(sane\_kit\_done == 0, "No", "Offered"))  
pp.cohort.1.u120$sane\_kit\_offered <- as\_factor(pp.cohort.1.u120$sane\_kit\_offered)  
pp.cohort.1.u120$sane\_kit\_offered <- relevel(pp.cohort.1.u120$sane\_kit\_offered, ref = "No")  
pp.cohort.2.u120 <- pp.cohort.2 %>% filter(under120h == TRUE) %>% mutate(sane\_kit\_offered = if\_else(sane\_kit\_done == 0, "No", "Offered"))  
pp.cohort.2.u120$sane\_kit\_offered <- as\_factor(pp.cohort.2.u120$sane\_kit\_offered)  
pp.cohort.2.u120$sane\_kit\_offered <- relevel(pp.cohort.2.u120$sane\_kit\_offered, ref = "No")  
path.u120 <- cohort.1 %>% filter(under120h == TRUE) %>% mutate(sane\_kit\_offered = if\_else(sane\_kit\_done == 0, "No", "Offered"))  
path.u120$sane\_kit\_offered <- as\_factor(path.u120$sane\_kit\_offered)  
path.u120$sane\_kit\_offered <- relevel(path.u120$sane\_kit\_offered, ref = "No")

SANE Kit Done?

sane.did.reg<-function(data, exposure){  
 model <- glm(did\_SANE\_kit ~ exposure + age + race\_eth\_num + ipv+ intoxicated + sane\_ED, family = "binomial", data = data)  
 model.results <- tbl\_regression(model, exponentiate = TRUE) %>% add\_global\_p()  
 return(model.results)  
}

pp.cohort.1.u120 <- pp.cohort.1.u120 %>% mutate(did\_SANE\_kit = if\_else(sane\_kit\_YN == "Yes", 1, 0))  
pp.cohort.2.u120 <- pp.cohort.2.u120 %>% mutate(did\_SANE\_kit = if\_else(sane\_kit\_YN == "Yes", 1, 0))  
path.u120 <- path.u120 %>% mutate(did\_SANE\_kit = if\_else(sane\_kit\_YN == "Yes", 1, 0))  
  
pp.sk.did <- sane.did.reg(pp.cohort.1.u120, pp.cohort.1.u120$exposure)  
prenp.sk.did <- sane.did.reg(pp.cohort.2.u120, pp.cohort.2.u120$exposure)  
path.sk.did <-sane.did.reg(path.u120, path.u120$exposure)  
table.reg.sk <- tbl\_merge(list(pp.sk.did, path.sk.did, prenp.sk.did), tab\_spanner = c("\*\*Post v. Pre\*\*", "\*\*Pathway v. No Pathway\*\*", "\*\*No Pathway v. Pre\*\*")) %>% as\_gt() %>% tab\_header("Odds of Doing SANE Kit if <120hrs")  
table.reg.sk

Table 1: Odds of Doing SANE Kit if <120hrs

|  | **Post v. Pre** | | **Pathway v. No Pathway** | | **No Pathway v. Pre** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** |
| Exposure | 0.83 (0.56 to 1.24) | 0.37 | 2.71 (1.37 to 5.48) | 0.004 | 0.52 (0.31 to 0.85) | 0.010 |
| Age | 0.99 (0.97 to 1.00) | 0.10 | 0.99 (0.97 to 1.02) | 0.54 | 0.99 (0.97 to 1.00) | 0.13 |
| Race and Ethnicity |  | 0.18 |  | 0.94 |  | 0.12 |
| Non-Hispanic White | — |  | — |  | — |  |
| Non-Hispanic Black | 0.67 (0.41 to 1.10) |  | 0.90 (0.41 to 2.00) |  | 0.61 (0.35 to 1.05) |  |
| Hispanic or Latina/o/x | 1.23 (0.73 to 2.11) |  | 1.00 (0.47 to 2.16) |  | 1.28 (0.70 to 2.40) |  |
| Other | 1.35 (0.59 to 3.36) |  | 0.71 (0.23 to 2.38) |  | 1.41 (0.54 to 4.14) |  |
| Assailant was Intimate Partner | 1.31 (0.62 to 2.96) | 0.49 | 1.09 (0.30 to 4.53) | 0.90 | 1.18 (0.54 to 2.73) | 0.68 |
| Intoxicated | 0.49 (0.32 to 0.75) | <0.001 | 0.45 (0.23 to 0.87) | 0.017 | 0.47 (0.29 to 0.76) | 0.002 |
| ED with SANE program | 2.31 (1.54 to 3.51) | <0.001 | 1.66 (0.84 to 3.30) | 0.14 | 1.72 (1.07 to 2.79) | 0.026 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | | | | |

### Secondary Outcome: *For Women =< 55 Presenting < 120 Hours*

preg.test.reg<-function(data, exposure){  
 model<-glm(pregnancy\_test\_ordered\_num ~ exposure + age + race\_eth\_num + ipv+ intoxicated + sane\_ED, family = "binomial", data = data)  
 model.results <- tbl\_regression(model, exponentiate = TRUE) %>% add\_global\_p()  
 return(model.results)  
}  
  
preg.prev.reg<-function(data, exposure){  
 model<-glm(prevent.preg ~ exposure + age + race\_eth\_num + ipv+ intoxicated + sane\_ED, family = "binomial", data = data)  
 model.results <- tbl\_regression(model, exponentiate = TRUE) %>% add\_global\_p()  
 return(model.results)  
}

Pregnancy test ordered?

preg.test.pp<-pp.cohort.1.u120 %>% filter(female == 1, age <= 55) %>% preg.test.reg(., .$exposure)  
preg.test.prenp<-pp.cohort.2.u120 %>% filter(female == 1, age <= 55) %>% preg.test.reg(., .$exposure)  
preg.test.path<-path.u120 %>% filter(female == 1, age <= 55) %>% preg.test.reg(., .$exposure)  
table.reg.pregtest <- tbl\_merge(list(preg.test.pp, preg.test.path, preg.test.prenp), tab\_spanner = c("\*\*Post v. Pre\*\*", "\*\*Pathway v. No Pathway\*\*", "\*\*No Pathway v. Pre\*\*")) %>% as\_gt() %>% tab\_header("Odds of Pregnancy Test Ordered (if =/<55 & <120 hrs)")  
table.reg.pregtest

Table 1: Odds of Pregnancy Test Ordered (if =/<55 & <120 hrs)

|  | **Post v. Pre** | | **Pathway v. No Pathway** | | **No Pathway v. Pre** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** |
| Exposure | 1.41 (0.92 to 2.18) | 0.12 | 5.38 (2.31 to 13.5) | <0.001 | 0.70 (0.41 to 1.20) | 0.20 |
| Age | 0.98 (0.96 to 1.00) | 0.056 | 0.98 (0.94 to 1.02) | 0.35 | 0.98 (0.95 to 1.00) | 0.10 |
| Race and Ethnicity |  | 0.41 |  | 0.73 |  | 0.39 |
| Non-Hispanic White | — |  | — |  | — |  |
| Non-Hispanic Black | 1.40 (0.82 to 2.42) |  | 1.40 (0.57 to 3.66) |  | 1.33 (0.75 to 2.42) |  |
| Hispanic or Latina/o/x | 1.54 (0.88 to 2.79) |  | 1.55 (0.63 to 4.10) |  | 1.59 (0.83 to 3.16) |  |
| Other | 1.13 (0.51 to 2.74) |  | 0.88 (0.25 to 3.59) |  | 0.81 (0.33 to 2.08) |  |
| Assailant was Intimate Partner | 1.11 (0.52 to 2.54) | 0.79 | 0.64 (0.17 to 2.78) | 0.53 | 1.23 (0.55 to 2.98) | 0.62 |
| Intoxicated | 0.78 (0.49 to 1.25) | 0.30 | 0.57 (0.25 to 1.27) | 0.17 | 0.73 (0.43 to 1.23) | 0.24 |
| ED with SANE program | 0.75 (0.49 to 1.16) | 0.20 | 0.45 (0.19 to 1.03) | 0.059 | 0.56 (0.34 to 0.93) | 0.023 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | | | | |

Pregnancy prophylaxis ordered?

preg.prev.pp<-pp.cohort.1.u120 %>% filter(female == 1, age <= 55) %>% preg.prev.reg(., .$exposure)  
preg.prev.prenp<-pp.cohort.2.u120 %>% filter(female == 1, age <= 55) %>% preg.prev.reg(., .$exposure)  
preg.prev.path<-path.u120 %>% filter(female == 1, age <= 55) %>% preg.prev.reg(., .$exposure)  
table.reg.pregprev <- tbl\_merge(list(preg.prev.pp, preg.prev.path, preg.prev.prenp), tab\_spanner = c("\*\*Pre v. Post\*\*", "\*\*Pathway v. No Pathway\*\*", "\*\*Pre v. No Pathway\*\*")) %>% as\_gt() %>% tab\_header("Odds of Pregnancy Prophylaxis Ordered (if =/<55 & <120 hrs)")  
table.reg.pregprev

Table 1: Odds of Pregnancy Prophylaxis Ordered (if =/<55 & <120 hrs)

|  | **Pre v. Post** | | **Pathway v. No Pathway** | | **Pre v. No Pathway** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** |
| Exposure | 1.25 (0.86 to 1.83) | 0.25 | 3.23 (1.63 to 6.67) | <0.001 | 0.82 (0.49 to 1.36) | 0.43 |
| Age | 0.98 (0.96 to 1.00) | 0.10 | 1.00 (0.96 to 1.03) | 0.92 | 0.97 (0.95 to 1.00) | 0.027 |
| Race and Ethnicity |  | 0.48 |  | 0.24 |  | 0.52 |
| Non-Hispanic White | — |  | — |  | — |  |
| Non-Hispanic Black | 1.00 (0.62 to 1.63) |  | 1.18 (0.55 to 2.53) |  | 1.01 (0.58 to 1.76) |  |
| Hispanic or Latina/o/x | 1.45 (0.89 to 2.38) |  | 1.28 (0.62 to 2.66) |  | 1.48 (0.82 to 2.68) |  |
| Other | 1.08 (0.51 to 2.28) |  | 0.39 (0.11 to 1.21) |  | 1.43 (0.58 to 3.47) |  |
| Assailant was Intimate Partner | 0.35 (0.14 to 0.75) | 0.007 | 0.57 (0.14 to 2.03) | 0.39 | 0.27 (0.09 to 0.66) | 0.003 |
| Intoxicated | 1.03 (0.67 to 1.57) | 0.91 | 0.74 (0.37 to 1.44) | 0.37 | 1.12 (0.67 to 1.87) | 0.68 |
| ED with SANE program | 1.06 (0.72 to 1.55) | 0.78 | 0.58 (0.28 to 1.14) | 0.12 | 0.91 (0.57 to 1.45) | 0.69 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | | | | |

### Secondary Outcome: *HIV PEP*

hiv.pep.reg<-function(data, exposure){  
 model<-glm(hiv\_pep\_kit\_ordered\_num ~ exposure + age + race\_eth\_num + ipv + intoxicated + sane\_ED, family = "binomial", data = data)  
 model.results <- tbl\_regression(model, exponentiate = TRUE) %>% add\_global\_p()  
 return(model.results)  
}

pathway.u72 <- cohort.1 %>% filter(u72 == 1)  
pp.u72 <- pp.cohort.1 %>% filter(u72 == 1)  
prenp.u72 <- pp.cohort.2 %>% filter(u72 == 1)  
tbl.pep.pp <- hiv.pep.reg(pp.u72, pp.u72$exposure)  
tbl.pep.path <- hiv.pep.reg(pathway.u72, pathway.u72$exposure)  
#### WARNING. Non-convirgence for no path vs pre. has to do with zero cell in ipv variable. does it matter?  
tbl.pep.prenp <- hiv.pep.reg(prenp.u72, prenp.u72$exposure)  
tbl.pep.hiv <- tbl\_merge(list(tbl.pep.pp, tbl.pep.path, tbl.pep.prenp), tab\_spanner = c("\*\*Pre v. Post\*\*", "\*\*Pathway v. No Pathway\*\*", "\*\*Pre v. No Pathway\*\*")) %>% as\_gt() %>% tab\_header("Odds of Receiving HIV PEP if Presented to ED <72 Hours Since Assault")  
tbl.pep.hiv

Table 1: Odds of Receiving HIV PEP if Presented to ED <72 Hours Since Assault

|  | **Pre v. Post** | | **Pathway v. No Pathway** | | **Pre v. No Pathway** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** |
| Exposure | 3.85 (2.42 to 6.22) | <0.001 | 8.70 (3.93 to 20.7) | <0.001 | 0.86 (0.41 to 1.73) | 0.68 |
| Age | 0.98 (0.95 to 1.00) | 0.022 | 0.99 (0.96 to 1.01) | 0.32 | 0.98 (0.95 to 1.01) | 0.24 |
| Race and Ethnicity |  | 0.91 |  | 0.49 |  | 0.87 |
| Non-Hispanic White | — |  | — |  | — |  |
| Non-Hispanic Black | 1.15 (0.64 to 2.05) |  | 1.54 (0.64 to 3.69) |  | 1.37 (0.63 to 2.94) |  |
| Hispanic or Latina/o/x | 1.22 (0.68 to 2.17) |  | 0.95 (0.42 to 2.16) |  | 1.19 (0.50 to 2.68) |  |
| Other | 1.04 (0.39 to 2.52) |  | 0.52 (0.13 to 1.93) |  | 1.01 (0.22 to 3.39) |  |
| Assailant was Intimate Partner | 0.37 (0.08 to 1.12) | 0.081 | 0.74 (0.13 to 3.72) | 0.71 | 0.00 (0.00 to 10,725,108) | 0.005 |
| Intoxicated | 0.93 (0.56 to 1.53) | 0.78 | 0.57 (0.27 to 1.17) | 0.13 | 0.78 (0.37 to 1.58) | 0.50 |
| ED with SANE program | 1.62 (1.01 to 2.61) | 0.043 | 1.39 (0.65 to 2.92) | 0.39 | 0.63 (0.31 to 1.22) | 0.17 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | | | | |

### Secondary Outcome: *ABX given*

refers to any abx given, not looking at correct med/dosage

abx.pep.reg<-function(data, exposure){  
 model<-glm(abx\_given ~ exposure + age + race\_eth\_num + ipv + intoxicated + sane\_ED, family = "binomial", data = data)  
 model.results <- tbl\_regression(model, exponentiate = TRUE) %>% add\_global\_p()  
 return(model.results)  
}

tbl.reg.path.abx <-abx.pep.reg(cohort.1, cohort.1$exposure)  
tbl.reg.pp.abx <-abx.pep.reg(pp.cohort.1, pp.cohort.1$exposure)  
tbl.reg.prepn.abx <-abx.pep.reg(pp.cohort.2, pp.cohort.2$exposure)  
tbl.all.abx <- tbl\_merge(list(tbl.reg.pp.abx, tbl.reg.path.abx, tbl.reg.prepn.abx), tab\_spanner = c("\*\*Post v. Pre\*\*", "\*\*Pathway v. No Pathway\*\*", "\*\*No Pathway v. Pre\*\*")) %>% as\_gt() %>% tab\_header("Odds of Ordering Antibiotics")  
tbl.all.abx

Table 1: Odds of Ordering Antibiotics

|  | **Post v. Pre** | | **Pathway v. No Pathway** | | **No Pathway v. Pre** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** | **OR** **(95% CI)***1* | **p-value** |
| Exposure | 1.28 (0.87 to 1.88) | 0.21 | 5.26 (2.54 to 11.4) | <0.001 | 0.75 (0.47 to 1.20) | 0.23 |
| Age | 0.97 (0.96 to 0.99) | <0.001 | 0.98 (0.96 to 1.00) | 0.078 | 0.97 (0.96 to 0.99) | <0.001 |
| Race and Ethnicity |  | 0.47 |  | 0.050 |  | 0.49 |
| Non-Hispanic White | — |  | — |  | — |  |
| Non-Hispanic Black | 1.13 (0.70 to 1.84) |  | 1.62 (0.69 to 4.07) |  | 1.14 (0.68 to 1.92) |  |
| Hispanic or Latina/o/x | 1.34 (0.81 to 2.28) |  | 0.86 (0.40 to 1.90) |  | 1.55 (0.87 to 2.85) |  |
| Other | 0.73 (0.35 to 1.56) |  | 0.26 (0.08 to 0.81) |  | 0.91 (0.39 to 2.22) |  |
| Assailant was Intimate Partner | 0.32 (0.16 to 0.61) | <0.001 | 0.25 (0.07 to 0.85) | 0.026 | 0.33 (0.16 to 0.67) | 0.002 |
| Intoxicated | 0.78 (0.52 to 1.16) | 0.21 | 0.57 (0.29 to 1.10) | 0.094 | 0.77 (0.49 to 1.20) | 0.25 |
| ED with SANE program | 1.38 (0.94 to 2.03) | 0.10 | 0.69 (0.33 to 1.39) | 0.30 | 1.18 (0.76 to 1.85) | 0.46 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | | | | | |

### Tertiary Outcome: *Follow Up at Discharge?*

note: removed outcome on 8/22/24

### Restricted to YSC and SRC

#create cohort restricted to YSC and SRC (SAFE program sites)  
  
SAFE\_Site\_Cohort <- pp.cohort.1 %>%   
 filter(sane\_ED == 1)  
SAFE\_Site\_Cohort\_u120 <- SAFE\_Site\_Cohort %>%   
 mutate(did\_SANE\_kit = if\_else(sane\_kit\_YN == "Yes", 1, 0)) %>%  
 filter(under120h == TRUE) #383 patients u120 at SAFE sites  
SAFE\_Site\_Cohort\_u120.f <- SAFE\_Site\_Cohort\_u120 %>% filter(female\_u55 == 1)  
SAFE\_Site\_Cohort\_u72 <- SAFE\_Site\_Cohort %>% filter(u72 == 1)  
# number of patients who had pathway used  
SAFE\_Site\_Cohort %>% filter(agile\_md\_used\_num == 1) %>% nrow() %>% print()

## [1] 95

SAFE\_Site\_Cohort\_u120 %>% filter(agile\_md\_used\_num == 1) %>% nrow() %>% print()

## [1] 89

# SAFE Kit Done; restricted to u120  
reg.ss.sk.did <- glm(did\_SANE\_kit ~ exposure + age + race\_eth\_num + ipv+ intoxicated, family = "binomial", data = SAFE\_Site\_Cohort\_u120)  
tbl.reg.ss.sk.did <- tbl\_regression(reg.ss.sk.did, exponentiate = TRUE) %>% add\_global\_p() %>% as\_gt() %>% tab\_header("Odds of Doing SAFE Kit (Restricted to YSC/SRC)")  
tbl.reg.ss.sk.did

Table 1: Odds of Doing SAFE Kit (Restricted to YSC/SRC)

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Exposure | 1.06 (0.58 to 1.93) | 0.86 |
| Age | 1.01 (0.98 to 1.04) | 0.46 |
| Race and Ethnicity |  | 0.62 |
| Non-Hispanic White | — |  |
| Non-Hispanic Black | 0.79 (0.40 to 1.57) |  |
| Hispanic or Latina/o/x | 1.07 (0.48 to 2.48) |  |
| Other | 2.00 (0.50 to 13.4) |  |
| Assailant was Intimate Partner | 1.41 (0.43 to 6.38) | 0.60 |
| Intoxicated | 0.37 (0.19 to 0.69) | 0.002 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

# advocate offered  
  
 SAFE\_Site\_Cohort$advocate\_offered <- as\_factor(SAFE\_Site\_Cohort$advocate\_offered )  
 SAFE\_Site\_Cohort$advocate\_offered <- relevel(SAFE\_Site\_Cohort$advocate\_offered, ref= "No Documentation of Pt Advocate")  
 reg.ss.adv <- glm(advocate\_offered ~ exposure + age + race\_eth\_num + ipv+ intoxicated, family = "binomial", data = SAFE\_Site\_Cohort)  
 tbl.reg.ss.adv <- tbl\_regression(reg.ss.adv, exponentiate = TRUE) %>% add\_global\_p() %>% as\_gt() %>% tab\_header("Odds of Offering Advocate (Restricted to YSC/SRC)")  
 tbl.reg.ss.adv

Table 1: Odds of Offering Advocate (Restricted to YSC/SRC)

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Exposure | 1.69 (0.99 to 2.91) | 0.053 |
| Age | 1.01 (0.99 to 1.04) | 0.42 |
| Race and Ethnicity |  | 0.78 |
| Non-Hispanic White | — |  |
| Non-Hispanic Black | 0.89 (0.48 to 1.64) |  |
| Hispanic or Latina/o/x | 1.03 (0.50 to 2.18) |  |
| Other | 0.59 (0.20 to 1.78) |  |
| Assailant was Intimate Partner | 2.91 (0.94 to 12.8) | 0.066 |
| Intoxicated | 1.06 (0.60 to 1.88) | 0.83 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

# pregnancy test ordered  
 reg.ss.preg <-glm(pregnancy\_test\_ordered\_num ~ exposure + age + race\_eth\_num + ipv+ intoxicated, family = "binomial", data = SAFE\_Site\_Cohort\_u120.f)  
 tbl.reg.ss.preg <- tbl\_regression(reg.ss.preg, exponentiate = TRUE) %>% add\_global\_p() %>% as\_gt() %>% tab\_header("Odds of Ordering Pregnancy Test (Restricted to YSC/SRC)")  
 tbl.reg.ss.preg

Table 1: Odds of Ordering Pregnancy Test (Restricted to YSC/SRC)

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Exposure | 1.95 (1.07 to 3.64) | 0.030 |
| Age | 0.98 (0.95 to 1.01) | 0.27 |
| Race and Ethnicity |  | 0.25 |
| Non-Hispanic White | — |  |
| Non-Hispanic Black | 2.02 (0.99 to 4.24) |  |
| Hispanic or Latina/o/x | 1.13 (0.53 to 2.47) |  |
| Other | 1.70 (0.53 to 6.61) |  |
| Assailant was Intimate Partner | 0.90 (0.31 to 2.87) | 0.86 |
| Intoxicated | 0.83 (0.43 to 1.61) | 0.58 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

# EC ordered  
 reg.ss.ec<-glm(prevent.preg ~ exposure + age + race\_eth\_num + ipv+ intoxicated, family = "binomial", data = SAFE\_Site\_Cohort\_u120.f)  
 tbl.reg.ss.ec <- tbl\_regression(reg.ss.ec, exponentiate = TRUE) %>% add\_global\_p() %>% as\_gt() %>% tab\_header("Odds of Ordering Emergency Contraception (Restricted to YSC/SRC)")  
 tbl.reg.ss.ec

Table 1: Odds of Ordering Emergency Contraception (Restricted to YSC/SRC)

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Exposure | 1.22 (0.71 to 2.09) | 0.47 |
| Age | 0.98 (0.95 to 1.01) | 0.19 |
| Race and Ethnicity |  | 0.72 |
| Non-Hispanic White | — |  |
| Non-Hispanic Black | 0.92 (0.48 to 1.74) |  |
| Hispanic or Latina/o/x | 1.30 (0.64 to 2.63) |  |
| Other | 1.46 (0.50 to 4.31) |  |
| Assailant was Intimate Partner | 0.55 (0.17 to 1.57) | 0.27 |
| Intoxicated | 0.99 (0.54 to 1.82) | 0.98 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

# HIV Prophylaxis ordered  
 reg.ss.hiv <-glm(hiv\_pep\_kit\_ordered\_num ~ exposure + age + race\_eth\_num + ipv + intoxicated, family = "binomial", data = SAFE\_Site\_Cohort\_u72)  
 tbl.reg.ss.hiv <- tbl\_regression(reg.ss.hiv, exponentiate = TRUE) %>% add\_global\_p() %>% as\_gt() %>% tab\_header("Odds of Ordering HIV PEP (Restricted to YSC/SRC)")  
 tbl.reg.ss.hiv

Table 1: Odds of Ordering HIV PEP (Restricted to YSC/SRC)

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Exposure | 9.73 (4.92 to 20.4) | <0.001 |
| Age | 0.96 (0.93 to 0.99) | 0.009 |
| Race and Ethnicity |  | 0.98 |
| Non-Hispanic White | — |  |
| Non-Hispanic Black | 1.03 (0.47 to 2.27) |  |
| Hispanic or Latina/o/x | 0.94 (0.39 to 2.21) |  |
| Other | 0.75 (0.17 to 2.94) |  |
| Assailant was Intimate Partner | 0.43 (0.06 to 1.93) | 0.29 |
| Intoxicated | 0.86 (0.42 to 1.77) | 0.69 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

# Abx ordered  
 reg.ss.abx <-glm(abx\_given ~ exposure + age + race\_eth\_num + ipv + intoxicated, family = "binomial", data = SAFE\_Site\_Cohort)  
 tbl.reg.ss.abx <- tbl\_regression(reg.ss.abx, exponentiate = TRUE) %>% add\_global\_p() %>% as\_gt() %>% tab\_header("Odds of Ordering Antibiotics (Restricted to YSC/SRC)")  
 tbl.reg.ss.abx

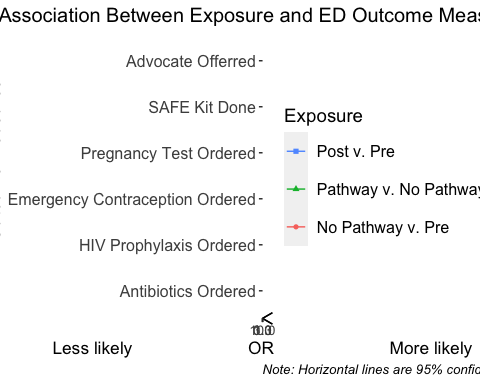
Table 1: Odds of Ordering Antibiotics (Restricted to YSC/SRC)

| **Characteristic** | **OR** **(95% CI)***1* | **p-value** |
| --- | --- | --- |
| Exposure | 1.45 (0.84 to 2.55) | 0.18 |
| Age | 0.97 (0.95 to 1.0) | 0.016 |
| Race and Ethnicity |  | 0.82 |
| Non-Hispanic White | — |  |
| Non-Hispanic Black | 1.09 (0.59 to 2.06) |  |
| Hispanic or Latina/o/x | 0.94 (0.45 to 2.00) |  |
| Other | 1.77 (0.52 to 8.20) |  |
| Assailant was Intimate Partner | 0.52 (0.20 to 1.34) | 0.17 |
| Intoxicated | 0.88 (0.50 to 1.56) | 0.67 |
| *1*OR = Odds Ratio, CI = Confidence Interval | | |

## Graphs

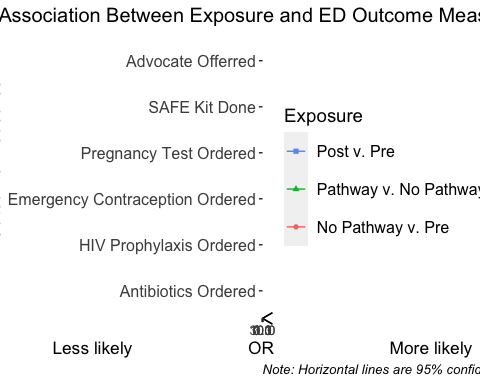
### Updated CI Graph

OR\_Data<- read\_excel("~/Documents/Current\_Projects/Sexual\_Assault/new\_SA\_YNHH/Updated YNHH SA code/OR\_Table\_Data.xlsx") %>% mutate(lnOR = log(OR), lnLCI = log(LCI), lnUCI=log(UCI))  
OR\_Data <- OR\_Data %>% mutate(Measure = fct\_relevel(Measure, "Antibiotics Ordered", "HIV Prophylaxis Ordered", "Emergency Contraception Ordered", "Pregnancy Test Ordered","SAFE Kit Done", "Advocate Offerred" ))   
FinalArrowMsg = "Less likely OR More likely"  
TitleStr <- paste("Association Between", sep = " ", collapse = NULL)  
TitleStr <- paste(TitleStr,'Exposure and ED Outcome Measures', sep = " ", collapse = NULL)  
pd <- position\_dodge(width = 0.6)  
 p <- ggplot(OR\_Data, aes(OR, Measure, group = Exposure))  
 CI\_Log\_Graph <- p + geom\_point(position = pd, aes(shape=Exposure, color=Exposure)) + geom\_errorbarh(aes(xmax = UCI, xmin = LCI, color = Exposure),height = 0.2,position = pd) + labs(x =FinalArrowMsg, y = "ED Outcome Measures",color = "Exposure", shape= "Exposure")+  
 theme(  
 plot.title = element\_text(size=15),  
 axis.title.x = element\_text(size=13),  
 axis.title.y = element\_text(size=14),  
 plot.caption = element\_text(hjust = 0, face= "italic",size=10),  
 axis.line.x = element\_line(arrow = grid::arrow(length = unit(0.3, "cm"),ends = "both")),  
 axis.text.y = element\_text(size=12),  
 axis.text.x = element\_text(size=10),  
 legend.text=element\_text(size=12),  
 legend.title = element\_text(size = 14),  
 legend.key.height=unit(1, "cm")  
 ) +   
 geom\_vline(xintercept = 1) +   
 scale\_x\_log10() +   
 labs(caption = "Note: Horizontal lines are 95% confidence intervals")+  
 ggtitle(TitleStr) + theme(plot.title = element\_text(hjust = 0.5))+  
 guides(color = guide\_legend(reverse=TRUE),shape =guide\_legend(reverse=TRUE))  
CI\_Log\_Graph

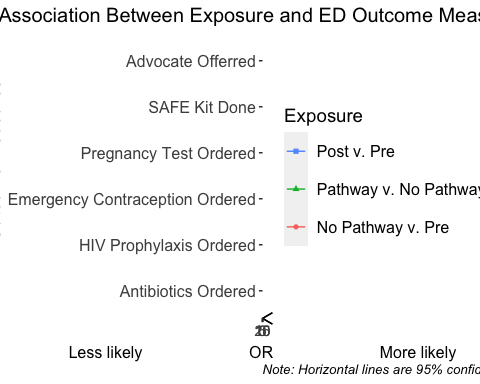


CI\_Log\_Graph + scale\_x\_log10(limits = c(0.05, 25), n.breaks = 6)

## Scale for x is already present.  
## Adding another scale for x, which will replace the existing scale.



CI\_Graph <- p + geom\_point(position = pd,aes(shape=Exposure, color=Exposure)) + geom\_errorbarh(aes(xmax = UCI, xmin = LCI, color = Exposure),height = 0.1,position = pd) + labs(x =FinalArrowMsg, y = "ED Outcome Measures",color = "Exposure", shape= "Exposure")+  
 theme(  
 plot.title = element\_text(size=15),  
 axis.title.x = element\_text(size=12, vjust = -.05),  
 axis.title.y = element\_text(size=14),  
 plot.caption = element\_text(hjust = 0, face= "italic",size=10),  
 axis.line.x = element\_line(arrow = grid::arrow(length = unit(0.3, "cm"),ends = "both")),  
 axis.text.y = element\_text(size=12),  
 axis.text.x = element\_text(size=11),  
 legend.text=element\_text(size=12),  
 legend.title = element\_text(size = 14),  
 legend.key.height=unit(1, "cm")  
 ) +   
 geom\_vline(xintercept = 1) +   
 labs(caption = "Note: Horizontal lines are 95% confidence intervals")+  
 ggtitle(TitleStr) + theme(plot.title = element\_text(hjust = 0.5)) +  
 guides(color = guide\_legend(reverse=TRUE),shape =guide\_legend(reverse=TRUE))  
  
CI\_Graph

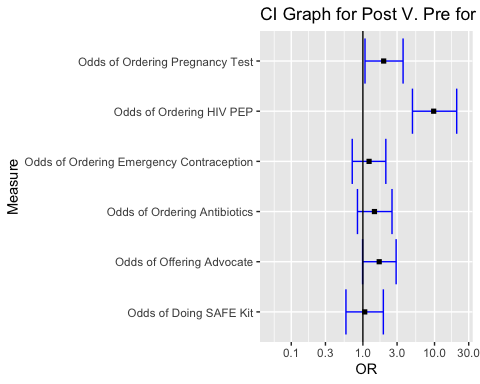


CI Graph for Post V. Pre for SAFE Sites (defined as YSC or SRC discharge)

SAFE\_SITE\_OR\_Data <- read\_excel("~/Documents/Current\_Projects/Sexual\_Assault/new\_SA\_YNHH/Updated YNHH SA code/SAFE\_SITE\_OR\_Data.xlsx")  
  
ggplot(SAFE\_SITE\_OR\_Data, aes(OR, Measure)) + geom\_errorbar(aes(xmax = UCI, xmin = LCI), color = "blue", height = 0.1) + geom\_vline(xintercept = 1) + geom\_point(shape = "square") + scale\_x\_log10() + ggtitle("CI Graph for Post V. Pre for SAFE Sites")+ scale\_x\_log10(limits = c(0.05, 25), n.breaks = 6)

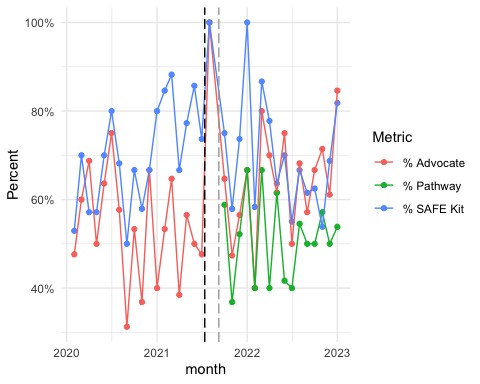
## Warning in geom\_errorbar(aes(xmax = UCI, xmin = LCI), color = "blue", height =  
## 0.1): Ignoring unknown parameters: `height`

## Scale for x is already present.  
## Adding another scale for x, which will replace the existing scale.

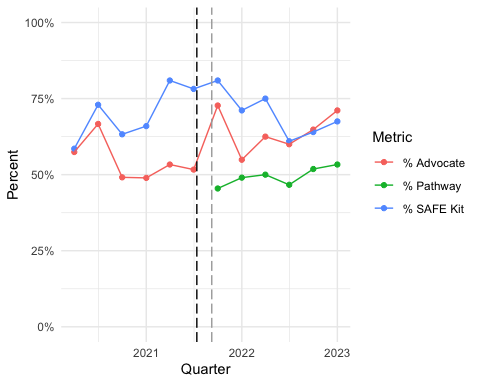


### Percent pathway, sane kit done and advocate offered over time

month\_line\_df <-  
 pp.cohort.1 %>% mutate(  
 month = ceiling\_date(arrive\_dt, unit = "month"),  
 advocate = case\_when(  
 advocate\_offered == "Advocate Offered" ~ 1,  
 advocate\_offered == "No Documentation of Pt Advocate" ~ 0,  
 .default = NA  
 ),  
 did\_SANE\_kit = case\_when(  
 under120h == TRUE & sane\_kit\_done == 1 ~ 1,  
 under120h == TRUE & sane\_kit\_done != 1 ~ 0,  
 .default = NA  
 ),  
 ) %>%  
 group\_by(month) %>% summarise(  
 Percent\_Advocate = mean(advocate),  
 Percent\_Pathway = mean(agile\_md\_used\_num, na.rm = FALSE),  
 Percent\_Sane = mean(did\_SANE\_kit, na.rm = TRUE)  
 ) %>% gather(key = "Metric", value = "Percent", -month) %>% filter(Percent !=0) %>% mutate(Metric = factor(Metric, labels = c("Percent\_Advocate" = "% Advocate", "Percent\_Pathway" = "% Pathway", "Percent\_Sane" = "% SAFE Kit")))  
  
month\_line\_df %>% ggplot(aes(x = month, y = Percent, color = Metric)) + geom\_point() + geom\_path() + scale\_y\_continuous(labels = scales::percent) + geom\_vline(xintercept = pathway\_start, color = "black", linetype= 'longdash') + geom\_vline(xintercept = sb\_start, color= "darkgrey", linetype= 'longdash') + theme\_minimal()

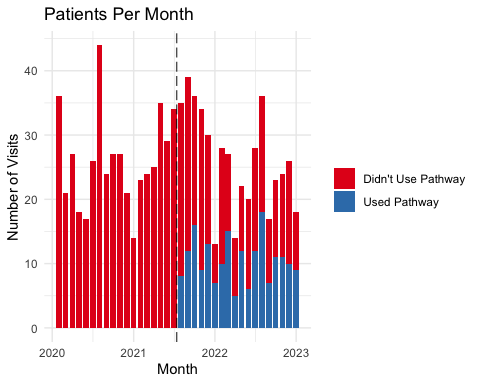


quarter\_line\_df <-  
 pp.cohort.1 %>% mutate(  
 quarter = ceiling\_date(arrive\_dt, unit = "quarter"),  
 advocate = case\_when(  
 advocate\_offered == "Advocate Offered" ~ 1,  
 advocate\_offered == "No Documentation of Pt Advocate" ~ 0,  
 .default = NA  
 ),  
 did\_SANE\_kit = case\_when(  
 under120h == TRUE & sane\_kit\_done == 1 ~ 1,  
 under120h == TRUE & sane\_kit\_done != 1 ~ 0,  
 .default = NA  
 )) %>%  
 group\_by(quarter) %>% summarise(  
 Percent\_Advocate = mean(advocate),  
 Percent\_Pathway = mean(agile\_md\_used\_num),  
 Percent\_Sane = mean(did\_SANE\_kit, na.rm = TRUE)  
 ) %>% gather(key = "Metric", value = "Percent", -quarter) %>% filter(Percent !=0) %>% mutate(Metric = factor(Metric, labels = c("Percent\_Advocate" = "% Advocate", "Percent\_Pathway" = "% Pathway", "Percent\_Sane" = "% SAFE Kit")))  
  
  
quarter\_percent\_plot<- quarter\_line\_df %>% ggplot(aes(x = quarter, y = Percent, color = Metric)) + geom\_point() + geom\_path() + theme\_minimal() + scale\_fill\_brewer(palette = "Set1") + scale\_y\_continuous(labels = scales::percent, limits=c(0,1)) + geom\_vline(xintercept = pathway\_start, color = "black", linetype= 'longdash') + geom\_vline(xintercept = sb\_start, color= "darkgrey", linetype= 'longdash')  
quarter\_percent\_plot + xlab("Quarter")

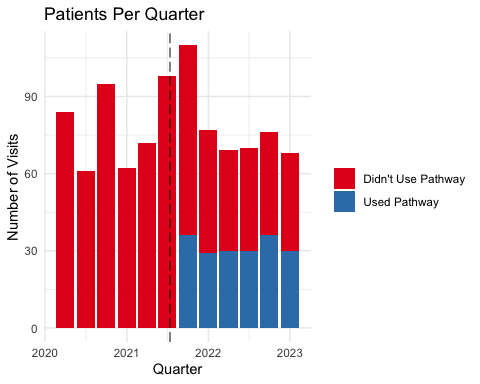


### Percent pathway utilization over time

time\_graph\_1 <- all\_pts %>% mutate(month = ceiling\_date(arrive\_dt, "month")) %>% ggplot() + geom\_bar(mapping = aes(x = month, fill = pathway)) + theme\_minimal() + scale\_fill\_brewer(palette = "Set1") + labs(title = "Patients Per Month", y = "Number of Visits", x= "Month", fill = NULL) + geom\_vline(xintercept = pathway\_start, color = "black", linetype= 'longdash', alpha = 0.7)  
time\_graph\_1



time\_graph\_2 <- all\_pts %>% mutate(quarter = ceiling\_date(arrive\_dt, "quarter")) %>% ggplot() + geom\_bar(mapping = aes(x = quarter, fill = pathway)) + theme\_minimal() + scale\_fill\_brewer(palette = "Set1") + labs(title = "Patients Per Quarter", y = "Number of Visits", x= "Quarter", fill = NULL) + geom\_vline(xintercept = pathway\_start, color = "black", linetype= 'longdash', alpha = 0.7)  
time\_graph\_2



### OR Graph

no longer using