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UBER

Personal Safety Deep Dive

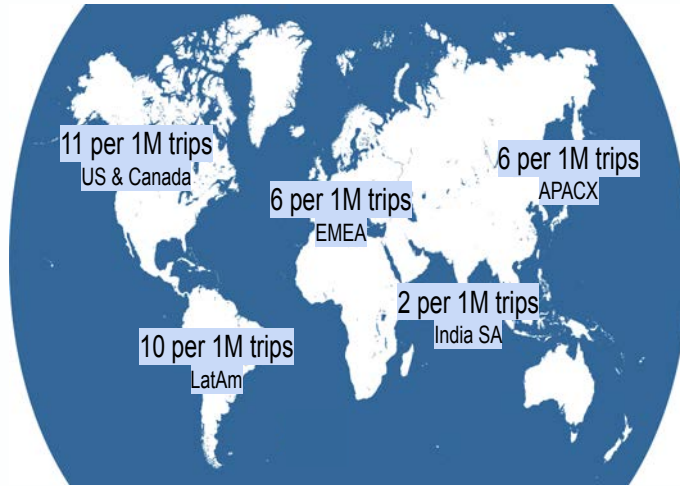
Sexual Assault Focused



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Background & Problem Definition

Sexual assaults are one of the most horrific and infuriating types of incidents that can occur on the Uber platform. While there are most certainly reporting trends & categorization differences across mega-region that influence these metrics, the issue is generally more pronounced in US&C vs. other mega-regions.

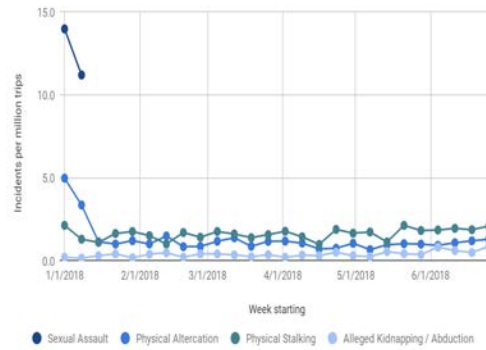


Notes: JIRA and Bliss tickets, de-duped by trip. Rates from representative week of 5/28/2018

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Sexual Assault represents the majority of our Serious Interpersonal Conflict Rate and also carries significant reputational risk. We see 11 sexual assault reports per 1M trips.

Serious Interpersonal Conflict by Issue Type

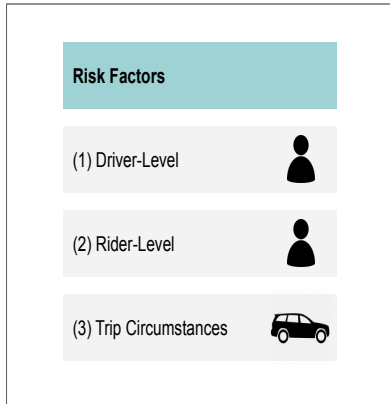


Please note that the metrics above may not be representative of the true state of incidents. Specifically:

- Above data is pulled from queries of support & JIRA tickets. One report does not necessarily mean one incident
- Only a portion of tickets are confirmed; many are unconfirmed. The metrics include unconfirmed tickets.
- Issue types can change over time and contain nuance. For example "contact" may include accidental or attempted contact

Week of 5/28 Sexual Assault incident rate per million trips based on Bliss and JIRA tickets:
US & CAN - 11.2
LATAM - 10.4
EMEA - 5.5
India - 2.0


To address this issue, our team has approached this in three-parts: (1) risk profile of the driver, (2) risk profile of the rider, and (3) the circumstances of the trip that make it higher-risk.



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(1) Risk Profile of Driver

Risk Profile of Users

(1) Driver 

(2) Rider

(3) Trip Circumstances

What can we do to *detect and action against* (e.g. deactivation) drivers who we believe are higher risk of getting into one of these incidents?

Example Dig Areas:

Standard-Related Work:

- Deactivating drivers with an anomalous number of interpersonal conflict related tickets
- Continuing to optimize our sexual misconduct related standards

Status: **Completed (and still ongoing)**

Non Standard-Related Work:

- Cancellation rate by gender
- Feedback tags given by users (esp by gender)
- Rating by gender


Status: **In Progress**

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(2) Risk Profile of Rider

Risk Profile of Users

(1) Driver

(2) Rider 

(3) Trip Circumstances

What can we do to *detect and action against (e.g. deactivation)* riders who we believe are higher risk of getting into one of these incidents?

Example Dig Areas:

Standard-Related Work:

- Deactivating riders with an anomalous number of interpersonal conflict related tickets
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Status: **Completed (and still ongoing)**

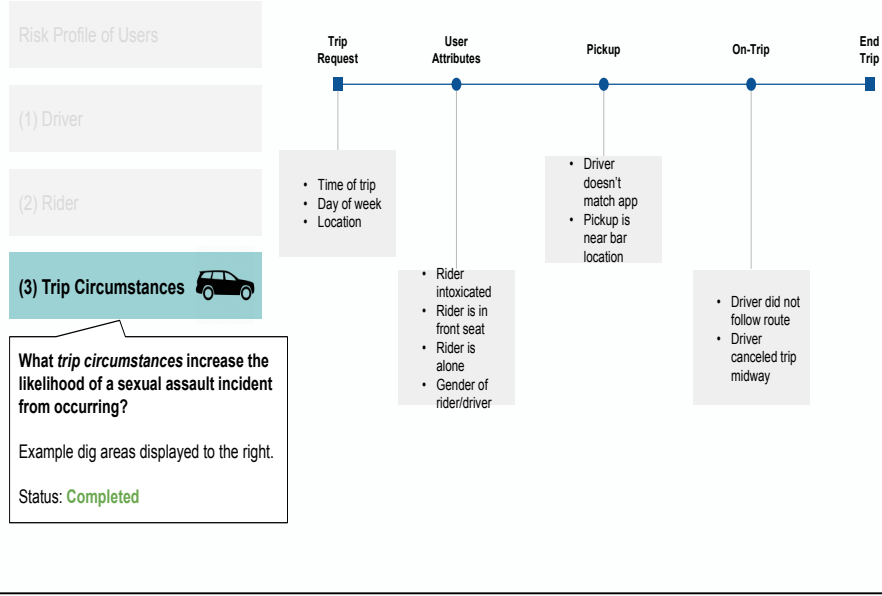
Non Standard-Related Work:

- Cancellation rate by gender
- Rating by gender
- Star ratings

Status: **Not Started (will be kicking off in H2)**

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(3) Circumstances of Trip



Slide 8

1

Can we get ahead of anomalous behavior via outreach?

Danielle Sheridan; 6/25/2018 10:22:38 PM

Findings

Data Insights

Insight #1: Majority of sexual assault offenders on the Uber platform are male.

Gender of Alleged Offender of Sexual Assaults

US P2P incidents occurring May 2017 - May 2018

	Gender of Alleged Offender	
	Female	Male
L3 Sexual Assaults (13,342 cases)	14%	86%
L4 Sexual Assaults (371 cases)	4%	96%

Notes: JIRA sexual assault tickets from US P2P trips occurring May 2017 - May 2018. Includes only sexual assaults with inferred gender data (97% of incidents) and those where the alleged offender is the driver or rider (73% of incidents).

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Insight #2: On an absolute basis, the majority of sexual assaults take place between male drivers and female riders. However, on a per trip basis, the issue is most pronounced between female drivers and male riders.

Sexual Assault Incident Rate by Gender of Driver + Rider

US P2P incidents occurring May 2017 - May 2018

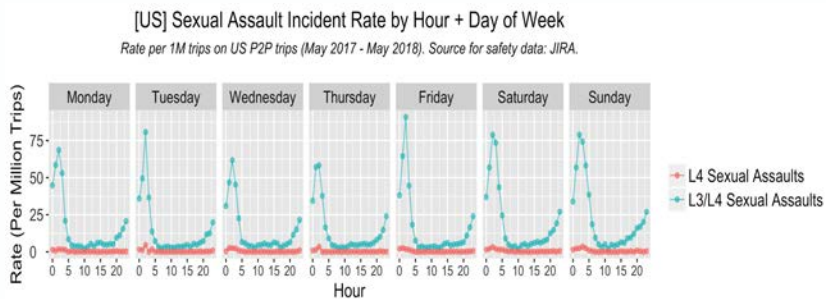
For female drivers, rate of sexual assault is **>4x** when matched with male instead of female.

	Female Drivers		Male Drivers	
	+ Female Rider	+ Male Rider	+ Female Rider	+ Male Rider
Rate of Sexual Assaults (Per 1M Trips)	8.36	38.98	13.10	7.93
Num of Sexual Assaults	549	3114	5476	4014
Num of Trips	66M	80M	418M	506M

Notes: Only US P2P trips and incidents occurring May 2017 - May 2018 with inferred gender data (97% coverage in sample). Safety data source: JIRA.

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Insight #3: Sexual assaults are generally concentrated to late-night, weekend hours.



12-3am Average Hourly Rate: 55 L3/L4s per 1M trips (2 L4s per 1M trips)

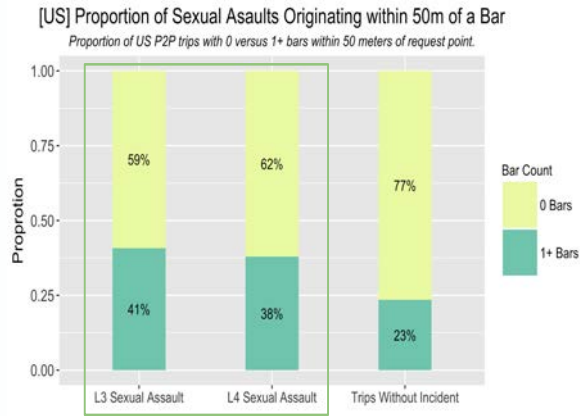
4am-11pm Average Hourly Rate: 9 L3/L4s per 1M trips (0.2 L4s per 1M trips)

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- 1 +valerie.shuping@uber.com
- Valerie - This is the cut of data I'm hoping to dig into. Do you have the underlying notebook for this data/graphs that I can peek at?
Teja Vadlamudi; 1/30/2019 5:31:17 PM
- 2 +sjeon@uber.com has this
Danielle Sheridan; 1/29/2019 11:19:30 PM
- 1 Yes - the screenshot is from Sunny's S-rad deck, but unfortunately I'm not able to grant you access. I did a similar analysis during the Opportunity Analysis project I will send you though!
Valerie Shuping; 1/29/2019 11:51:05 PM
- 2 Perfect, thanks! I reached out to Sunny inquiring about this.
Teja Vadlamudi; 1/30/2019 5:31:17 PM

Insight #4: Trips that involve an L3/L4 sexual assault originate within 50m of a bar **more often** than trips that don't involve an incident.

Nearly **half** of sexual assaults in the US originated within 50m of a bar.



Notes: 100% sample of sexual assaults (13555 L3 sexual assaults, 382 L4 sexual assaults) and 250k randomly selected trips without sexual assaults (source: JIRA). US P2P occurring March 1 - May 14, 2018.

Note: Bars were determined by "map_creation.places" table in Hive, which pulls data from Foursquare, as well as a few other external sources

Slide 14

1

+nick.murphy@uber.com data refresh for this year?

Assigned to Nick Murphy

Seongeun Yoon; 10/17/2019 9:58:05 PM

Audit Key Insights

Full audit [here](#)

We also conducted an audit to more deeply understand trip-level risk factors that involve sexual assault tickets.

Audit Overview

- We worked in conjunction with Safety & Insurance Data Science to audit 500 serious incidents in the US and Canada from trips between 3/2017 and 2/2018 in order to determine which risk factors (described previously) are most prevalent in L3/L4 Sexual Misconduct
 - 284 Sexual Assault tickets (143 L3; 141 L4)
- Included all Products and Flows except for Eats
- Note that multiple risk factors could be chosen for a single trip, and the same user could be involved in multiple incidents
- Sample size for this audit can generally be considered representative of overall population (+/- 6-7% at 95% conf. interval); however, user-level and gender-level insights may not be

1

Intoxicated Riders | Sexual Assault

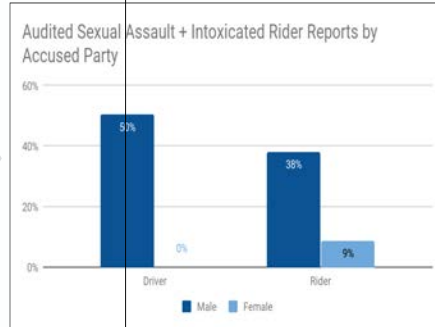
Over half of audited Sexual Assault reports include an intoxicated rider. 50% of these tickets had a **male driver** as the accused party, and 38% of tickets had a **male rider** as the accused party

Findings

284 Sexual Assault reports audited

52% (147) include a suspected intoxicated rider

Of those, 50% (74) have a **male driver** as an accused party



The numbers may not tie out to 100% because 1) More than one party can be accused (e.g. rider and driver both accuse each other of physical altercation); or 2) A third party may be the only accused party (e.g. a driver is robbed by pedestrian right after dropoff).

2

Riders Alone in Car | Sexual Assault

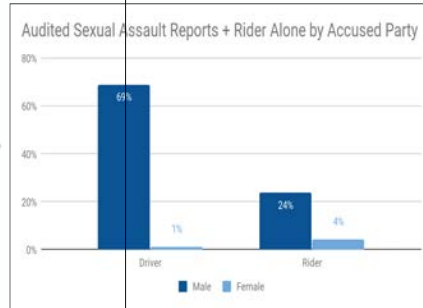
A third of Sexual Assault reports are indicated to have a rider who is alone in the vehicle. The majority of these cases involved a male driver as the accused party.

Findings

284 Sexual Assault reports audited

33% (93) include a rider who is alone in car

Of those, 69% (64) have a male driver as an accused party



The numbers may not tie out to 100% because 1) More than one party can be accused (e.g. rider and driver both accuse each other of physical altercation); or 2) A third party may be the only accused party (e.g. a driver is robbed by pedestrian right after dropoff).

3

Rider in Front Seat | Sexual Assault

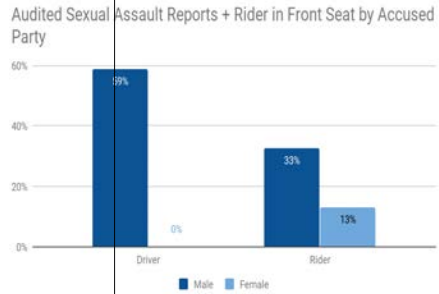
In over 15% of audited Sexual Assault reports, the rider was indicated to be sitting in the front seat

Findings

284 Sexual Assault reports audited

16% (46) include trips where the rider is indicated to be sitting in the front seat

Of those, almost 60% (27) have the driver as an accused party



The numbers may not tie out to 100% because 1) More than one party can be accused (e.g. rider and driver both accuse each other of physical altercation); or 2) A third party may be the only accused party (e.g. a driver is robbed by pedestrian right after dropoff).

Forward-Looking Actions
Product

Safety & Insurance “Safety Risk Assessed Dispatch (S-RAD)” Model

- **Motivation:**
 - Prevent sexual assaults on the Uber platform.
- **Intervention Design:**
 - Leverage machine learning to flag **driver-rider matches** with elevated risk and **down-rank** those matches at the point of dispatch (subject to marketplace constraints).
- **Preliminary Results:**
 - Prediction using machine learning:
 - Can predict >15% of US sexual assaults by flagging 1% of highest risk trips
 - Better at predicting sexual assaults involving female drivers than male drivers

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- 3 **verbiage "prevent"**
Danielle Sheridan; 6/21/2018 10:54:07 PM
- 1 **Aware Dispatch**
Akankshu Dhawan; 6/21/2018 10:53:12 PM

Next Steps

- Partnering with Safety & Insurance to experiment with this model in 1 US city in Q3 (likely Los Angeles)
- Plan on connecting closely with following business partners to ensure smooth rollout:
 - Central Ops - Marketplace
 - Product - Marketplace
 - Legal
 - Public Affairs

Forward-Looking Actions
Ops

Potential Ops Ideas To Address Trip-Level Risk Factors

Category	Potential Ops Actions
Intoxicated Riders	<ul style="list-style-type: none"> • Provide safety partitions at a discount • Scope in-car interventions (e.g. games, food, water bottle) to distract riders • Work with Safety Marketing team to release pro-tips to drivers on how to best deal with intoxicated riders (i.e. what to do if driver feels as though s/he is potentially in danger) → de-escalation
Riders Alone In Car	<ul style="list-style-type: none"> • Work with Product to determine if we can require riders to indicate # of passengers for non shared rides products; use as input into S-RAD • Loosen POOL match rules during high incident times or areas
Rider In Front Seat	<ul style="list-style-type: none"> • Educate riders that we don't expect them to sit in the front unless necessary. Provide in-app indicators (e.g. "Your car has arrived. Please proceed to the backseat") • Educate drivers that they shouldn't need to use the front seat unless their car is at capacity
Other	<ul style="list-style-type: none"> • Premium upgrades? • Proactive outreach for low-ratings? -> rider & driver • Incentives? • Cameras? -> connect with Product on dashcams • Education? E.g. re-visiting warnings
	<ul style="list-style-type: none"> • Not A/H -> 8% (lower bound) • Rider ratings

Slide 24

4

+valerie.shuping@uber.com

Danielle Sheridan; 7/5/2018 7:49:17 PM

Next Steps

Next Steps

- Safety Ops to brainstorm Ops-specific action items with relevant Safety & Insurance teams & determine which to prioritize. Implement the ones that we believe will legitimately move the needle
- Safety Ops to support Safety & Insurance on S-RAD (and will incorporate relevant teams as necessary)
- Safety Ops to continue working against driver-level risk factors (to inform future deactivation decisions), as well as rider-level risk factors (H2)