



Ignoring the Warnings

Lessons in Normalization of Deviance from the World of Motorsports

June 5, 2019 | Brussels, Belgium



Safety in Racing and Aviation



Image: Habeed Hameed

- Inherently risky activity
- History of fatal accidents
- Excellent recent safety record
- Zero-tolerance approach to safety
- Key difference
 - Aviation: Prevent the crash
 - Racing: Keep driver safe in crash

Formula 1

- “Pinnacle of world motorsports”
- Most expensive and sophisticated form of racing
- Highest-paid drivers
- Regulated by FIA
- Very high safety standards
- 20 years without driver fatality



Image: Drew Bates

Jules Bianchi



Image: Jake Archibald

2014 Japanese Grand Prix



Image: Takayuki Suzuki

- Start time delayed
 - Proposal to move start time forward rejected
- Heavy rain, low light
- Lap 42: Adrian Sutil crashes
- Construction vehicle on track to recover car
- Double waved yellow flags



Medical Helicopter

- Medical helicopter unable to land at hospital due to weather
- Regulation requiring helicopter self-defeating
- Officials aware that helicopter couldn't operate?
- **Lesson: Gap in procedures can negate vital rules**



Image: Ania Borko

Race Start Time



Image: Ben Sutherland

- Race start pushed back for commercial reasons
- Weather forecast to worsen during race
- No procedure for starting race early
- No good options for delays
- Lesson: More procedures = more options

Yellow Flags

- FIA International Sporting Code, Art. 2.5.5 b)

Yellow flag

This is a signal of danger and should be shown to drivers in two ways with the following meanings:

.....

Double waved: Reduce your speed significantly, do not overtake, and be prepared to change direction or stop. There is a hazard wholly or partly blocking the track and/or marshals working on or beside the track. During free practice and qualifying, it must be evident that a driver has not attempted to set a meaningful lap time; this means the driver should abandon the lap.

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Yellow Flags

- Andrew Benson, BBC Chief F1 Writer: "But that is not to say Bianchi was doing anything out of the ordinary. It is in the nature of F1 for people to push things to the limit, whether it be drivers or teams. It was normal practice for a driver to slow down in such situations only enough for them to have showed they had slowed down should they be questioned later. There was no definition of how much they should do so. It was behaviour that had become acceptable, in that it passed without comment from officials."

Prisoner's Dilemma

	You slow down	You go fast
Competitors slow down	Even competition Safe	Big competitive advantage Unsafe
Competitors go fast	Big competitive disadvantage Safe	Even competition Unsafe

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Solution: New Procedure

- Virtual Safety Car
- Minimum time through each section of track
- Drivers can slow without competitive disadvantage
- Tested less than a month after Bianchi crash
- Implemented next season



Image: Nic Redhead

Yellow Flags: The Lessons

- Competitive pressures + poor enforcement = normalization of deviance
- Strong procedures can eliminate competitive pressures
- In competitive environment, rules must be clear and enforceable

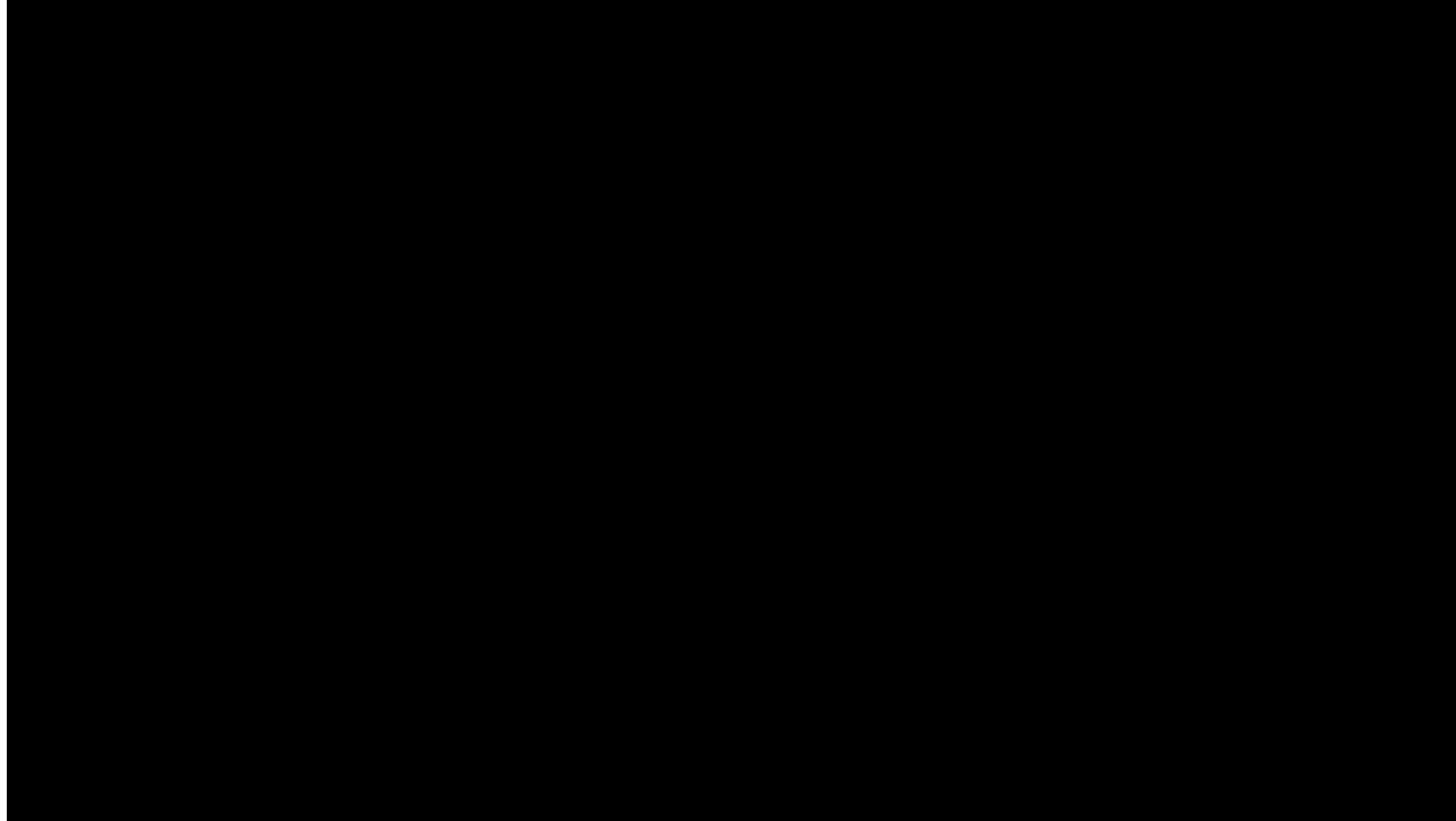


Image: David Merrett

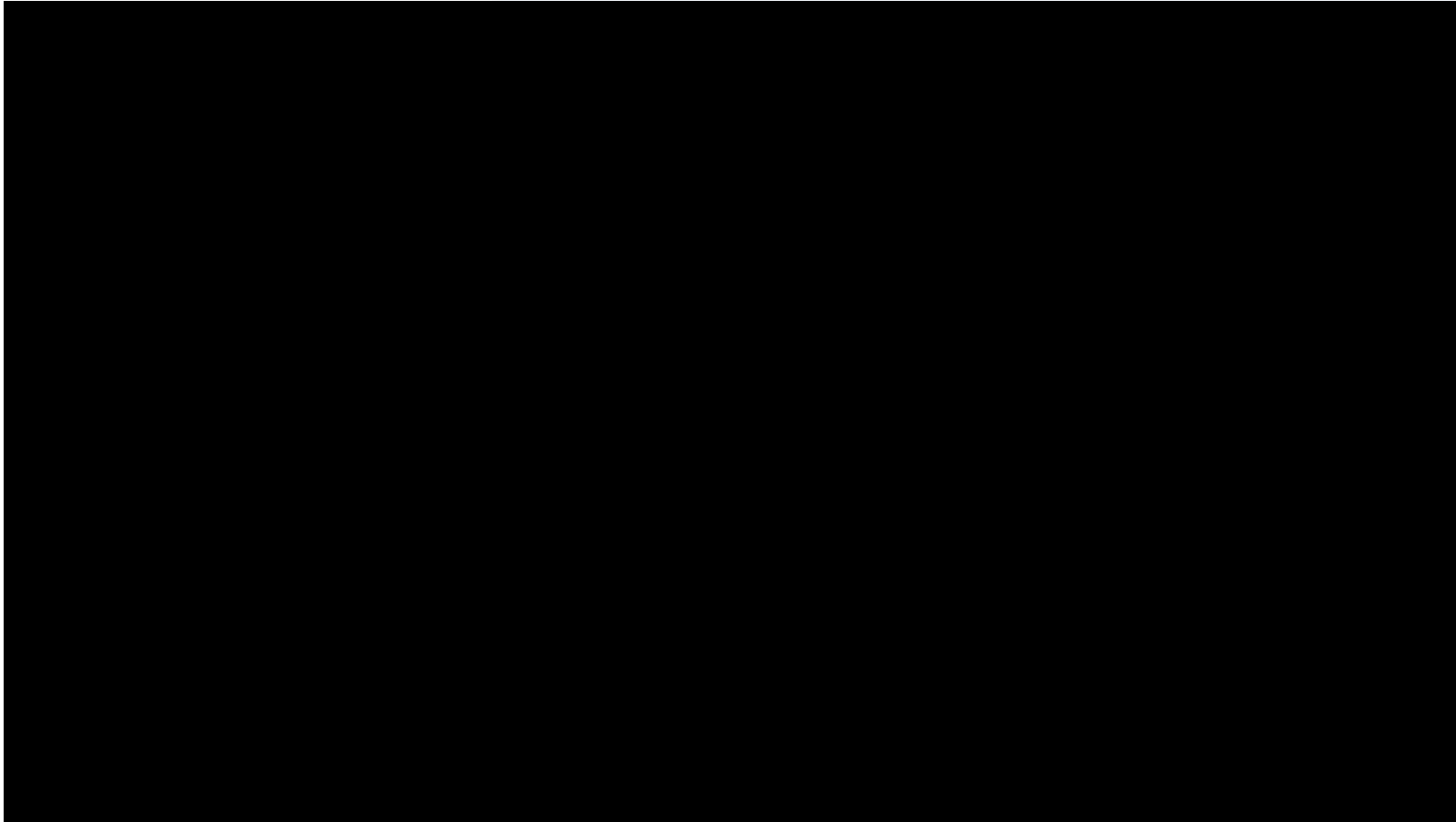
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- Peter Wright, head of FIA Safety Commission: "It is still often the case that some accident must first occur in order to learn from them.... It was a scenario we could not previously imagine."

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- Collision between F1 car and rescue vehicle was predictable
- Previous instances occurred in chaotic races
 - Safety issues overshadowed by other discussions
- No injuries = no urgency
- Solution implemented quickly after tragedy
- Lesson: Treat lucky near-misses as if the worst-case scenario had occurred

Lessons

- Competitive pressures + poor enforcement = normalization of deviance
 - Solution: Black and white rules, consistent enforcement
 - Solution: Strong procedures to eliminate competitive pressures
- Regulators must understand their audience and their motivations
- Treat lucky near-misses as if the worst-case scenario had occurred
- Understand procedures from beginning to end to prevent gaps
- More procedures = more options

The background of the slide is a dark, grayscale photograph of two people sitting at a desk, working on laptops. A bright green network graphic, consisting of interconnected dots and lines, is overlaid on the right side of the image. The word "Questions?" is written in a large, bold, bright green font across the center of the image.

Questions?



Thank you.