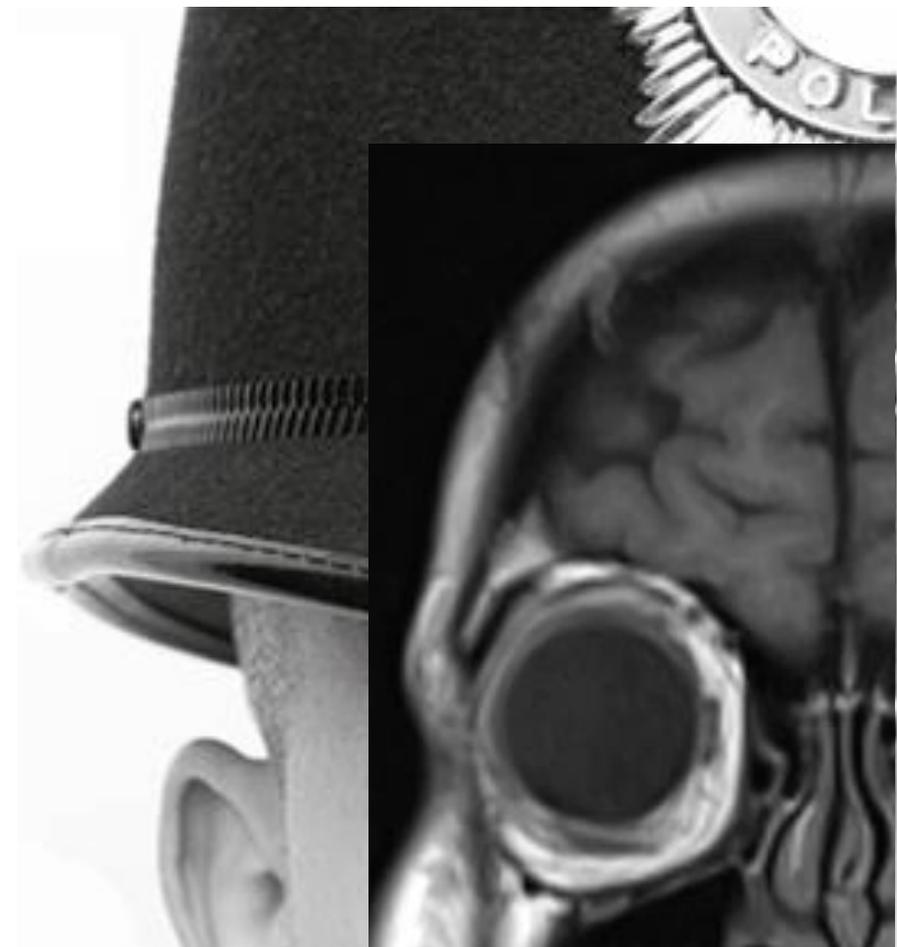




## CCPR Annual Conference

June 2018

### **Taming the Wicked Brain** and the role of partnerships Dr Jess Miller



**“We have learned more about the human brain in the last 15 years than we have in the whole of human history”**

Michael Taft (Neuroscience Summit 2017)



## Why is neuroscience so well received?

Evidenced. Accessible. Empowering.

*Pssst! Because we all have a brain and we all want to be happy*

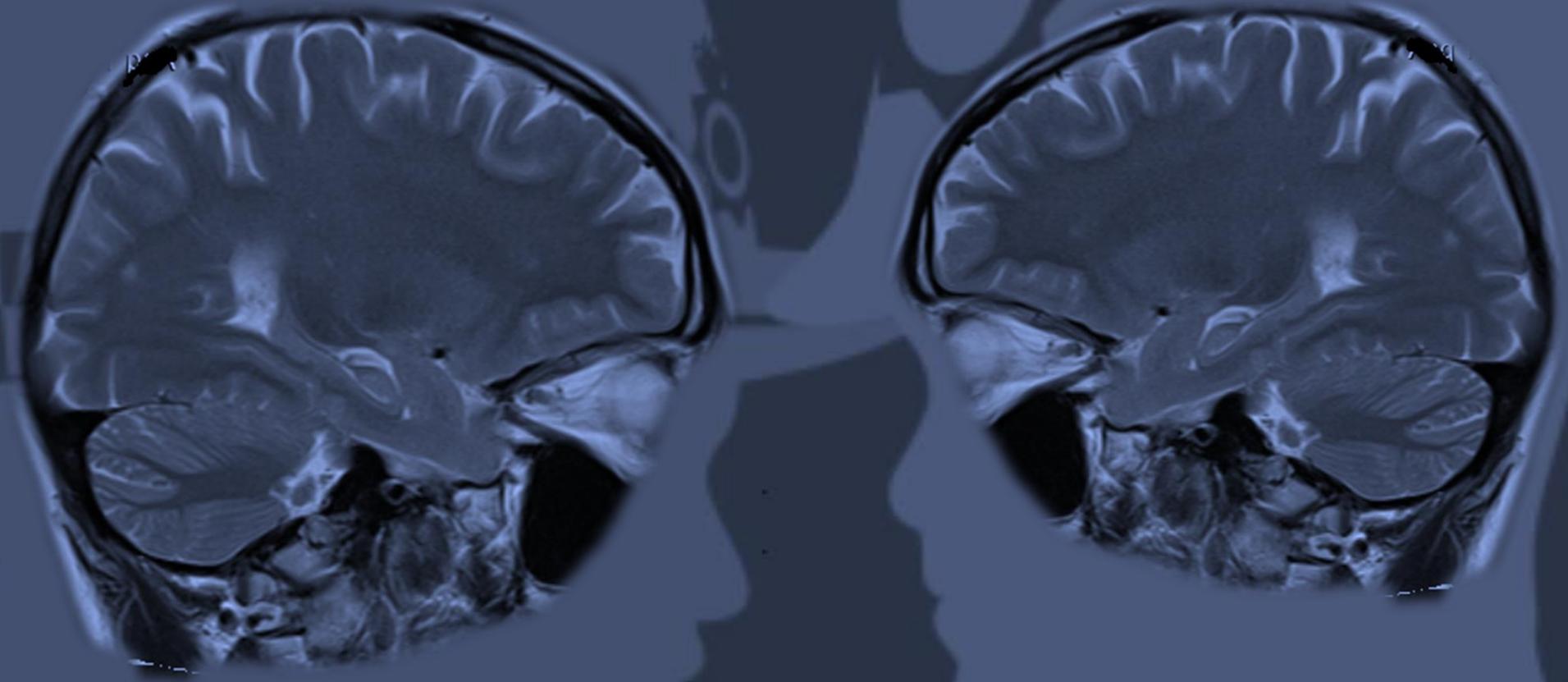
# How can neuroplasticity help policing?

Learning new resilience skills for life



# Taming the Evolving Brain

The brain evolves to fit its environment



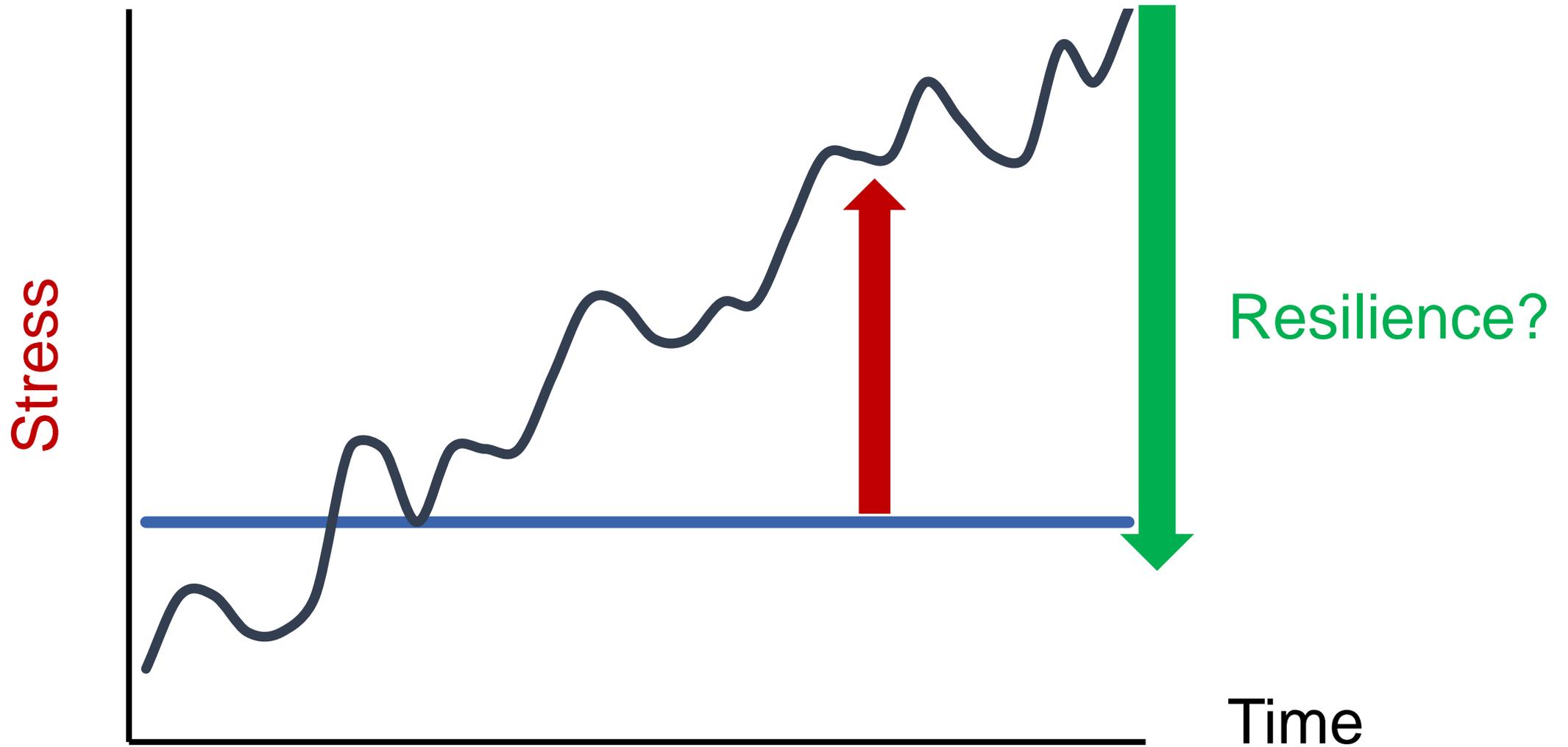
*-not to make you happy.*



## GMP Annual Report 2016 - 2017



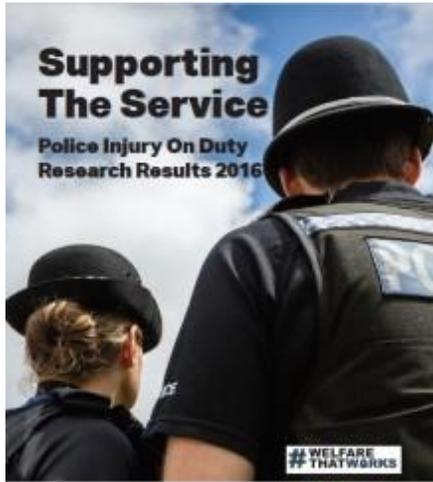
@millerjessicak #neuroscienceforpolicing #policingbrain #WelfareThatWorks



# **What policing research tells us**

## Pressures on the evolving policing mind





# Why?



(PDT & University of Surrey Nov 2016)

## Serving Personnel

- 81% all IoD, 93% for police officers
- **MH main reason time off 43% - anxiety, depression, sleep, PTSD**
- Under-reporting
- Stigma, training, punitive
- Supervisor training
- Women & special constabulary
- Referrals, diagnosis, access to services
- **86% MH to be priority**

## Former personnel (IoD)

- **Leavers: 47% work rel MH**
- 71% ongoing support (5% satisfaction)
- 35% **indicated** PTSD
- 7% inpatient psych care
- 76% - career retraining
- **6% living comfortably (40% non IoD)**
- **15% difficult/very diff £**



Police Dependents' Trust



# **What neuroscience is saying**

About this evolving policing mind



**Police PTSD research** deficit (Foley & Massey, 2018)

**Police** have smaller hippocampi after trauma (Lindnaur, 2007)

**Police** need more Pfc and less amygdala –using fMRI (Peres et al., 2011)

Neuroscience of **police compassion management** (Mercadillo et al., 2014)

Healthy **police** can't navigate well after trauma (Miller et al., 2016,17)

Activating **brain reward centres** in **special ops**' (Vythiligam et al., 2009)

Brain activation in **police** after trauma (Henig-Fast et al., 2009)

**Police trying not to think** about traumatic incidents (Green, 2004)

Secondary trauma from disturbing images in **policing** (Perez et al., 2010)

Timeline techniques for **police** to **process incidents** (Hope et al., 2013)

**Mental preparedness** for **police** resilience on duty (Andersen et al., 2015)

**Police** call handlers' psychological health (Golding et al., 2017)

Training **police** trainees in **trauma management** (Manzella & Papzoglou, 2014)



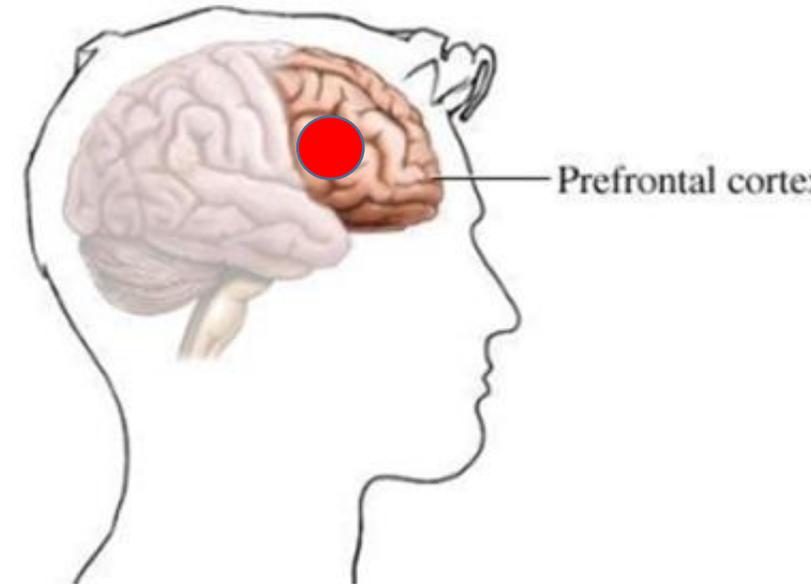
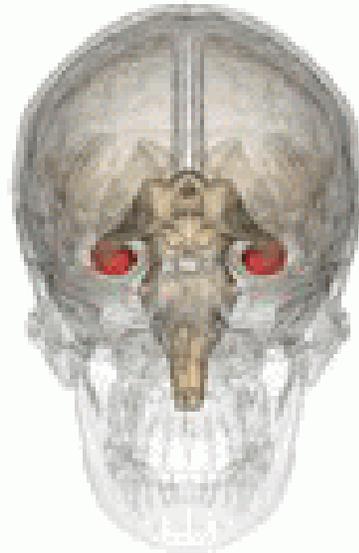
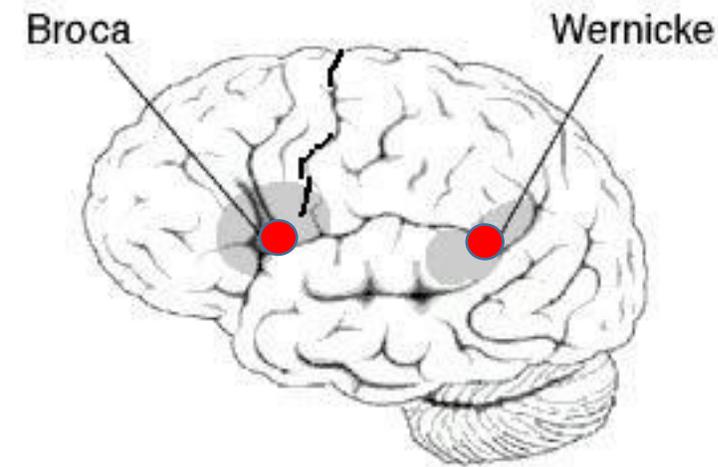
# Hot spots in the Policing Mind

Areas we need to understand & use better

## Language centres

## Hippocampus vs amygdala

## 'New' brain (mPFC)



Verbalisation for  
emotional regulation

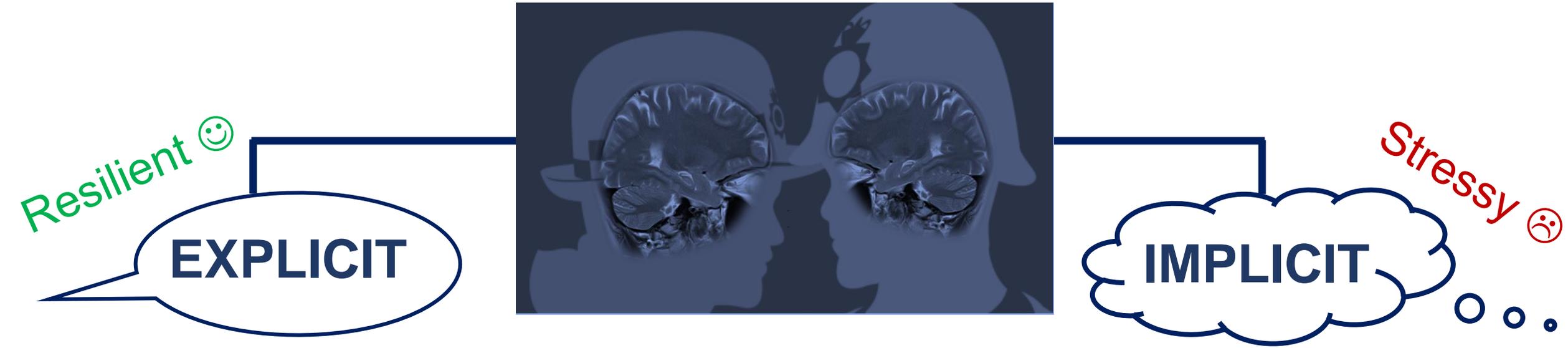
Trauma memory consolidation  
using space & time

Awareness & compassion  
for resilience



# Thinking styles

Getting explicit and taming the implicit



Declarative (**language centres**)  
Contextualising events (**hippocampus**)  
Applying attention & awareness (**mPFC**)  
Emotion regulation

Non-declarative  
Associative, responsive (**amygdala**)  
Autonomic (**body**) & procedural  
[**Default Mode Network**]



# So how can we help?

Addressing the research deficit & translating it operationally  
[#neuroscienceforpolicing](#) [#policingmind](#) [#welfarethatworks](#)



# Trauma Resilience in UK Policing

[www.policingtrauma.sociology.cam.ac.uk](http://www.policingtrauma.sociology.cam.ac.uk)

## Post-Incident Trauma Processing Training

Memory consolidation, emotion regulation (In progress)

## Understanding atypical trauma exposure

Processing digital / audio / extreme information (Complete)

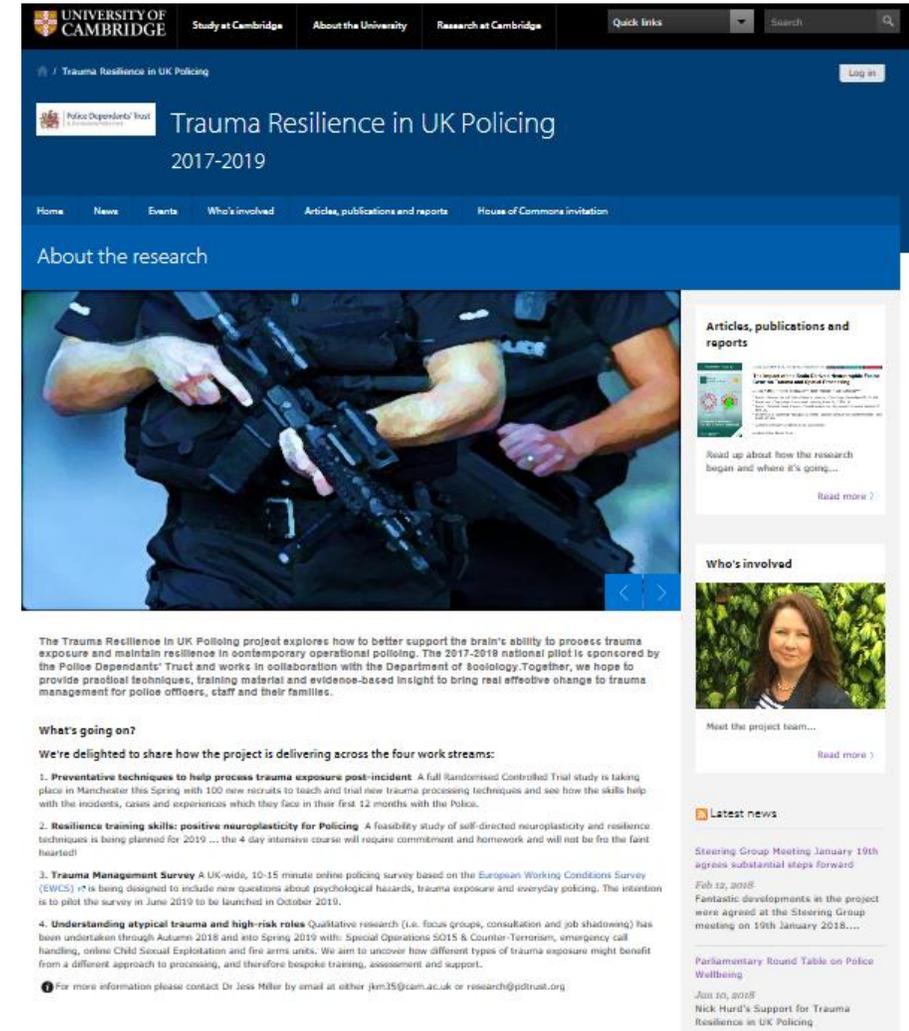
## Trauma Management Survey (Oct 2018)

Awareness & cognition: accessing force provision

## Self-Directed Resilience Course (March 2019)

Positive neuroplasticity

Cognitive agility & compassion management



The screenshot shows the website for the 'Trauma Resilience in UK Policing' project at the University of Cambridge. The page features a navigation bar with links to 'Study at Cambridge', 'About the University', 'Research at Cambridge', and 'Quick links'. The main content area includes a header with the project title and a sub-header '2017-2019'. Below this is a navigation menu with links to 'Home', 'News', 'Events', 'Who's involved', 'Articles, publications and reports', and 'House of Commons invitation'. The main content area is titled 'About the research' and features a large image of a police officer holding a rifle. To the right of the image is a section titled 'Articles, publications and reports' with a sub-section 'Who's involved' featuring a portrait of a woman. Below the image is a paragraph of text describing the project's goals and a section titled 'What's going on?' with a list of four work streams: 1. Preventative techniques to help process trauma exposure post-incident, 2. Resilience training skills: positive neuroplasticity for Policing, 3. Trauma Management Survey, and 4. Understanding atypical trauma and high-risk roles. At the bottom of the page, there is a contact information section for Dr. Jess Miller.



@millerjessicak #neuroscienceforpolicing #policingbrain #WelfareThatWorks

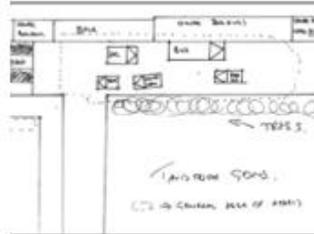
# Post-Incident Trauma Processing Training (PITP)

Greater Manchester Police

March 2018 – March 2019

Randomised Controlled Trial (n = 75)

- **Memory consolidation & traumatic stress re-set**
- Proactive verbalisation for emotion regulation
- Maximising peer support
- Teachability of PITP, TRiM, PIM/PIPs
- Self-assessment of trauma



Trauma impact on hippocampal-dependent processing, mapping cognitive interviews & using timelines when interviewing witnesses

(Brewin et al., 2010; Smith et al., 2015; Miller et al., 2017; Milne et al., 2014; Hope et al., 2013; Nook et al., 2017; Greenberg et al., 2017)

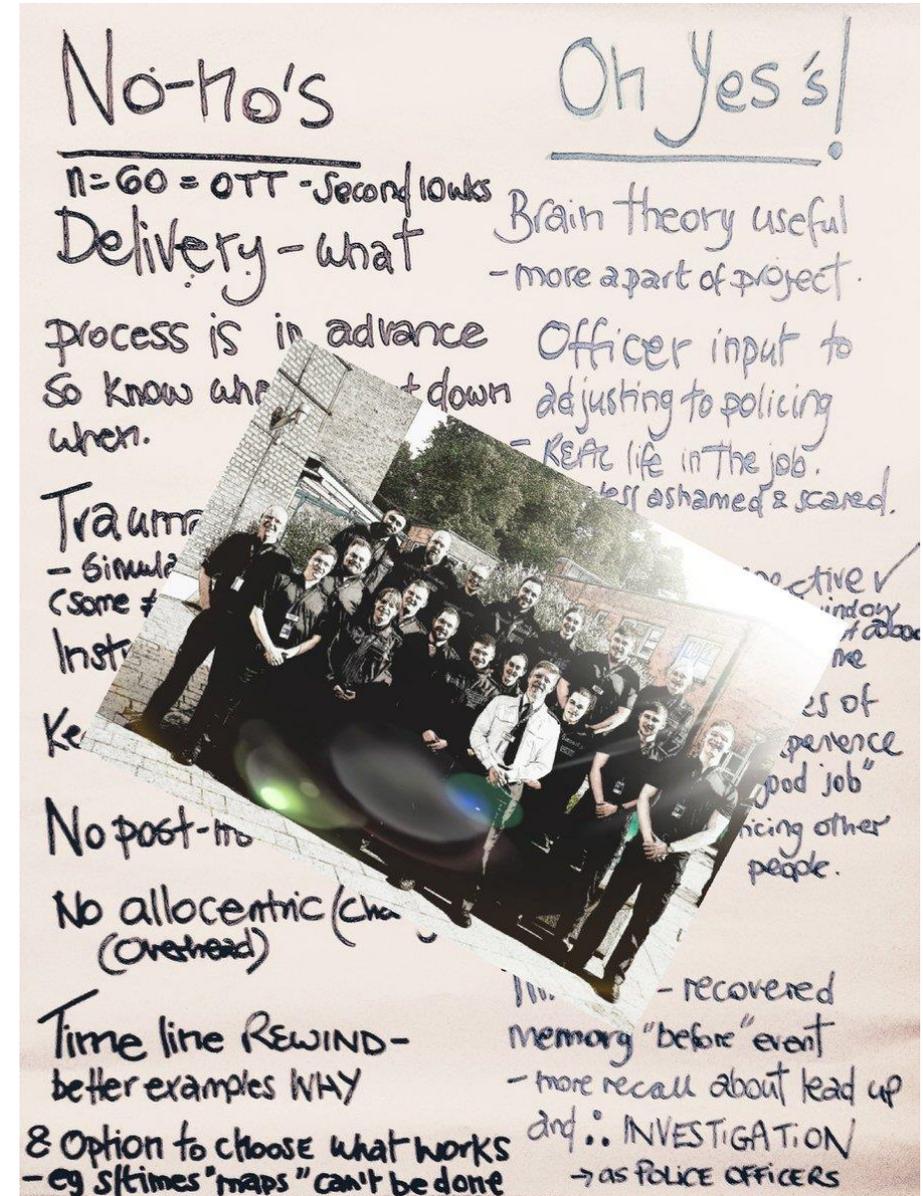


# PITP Trial Sessions

Initial findings May 2018

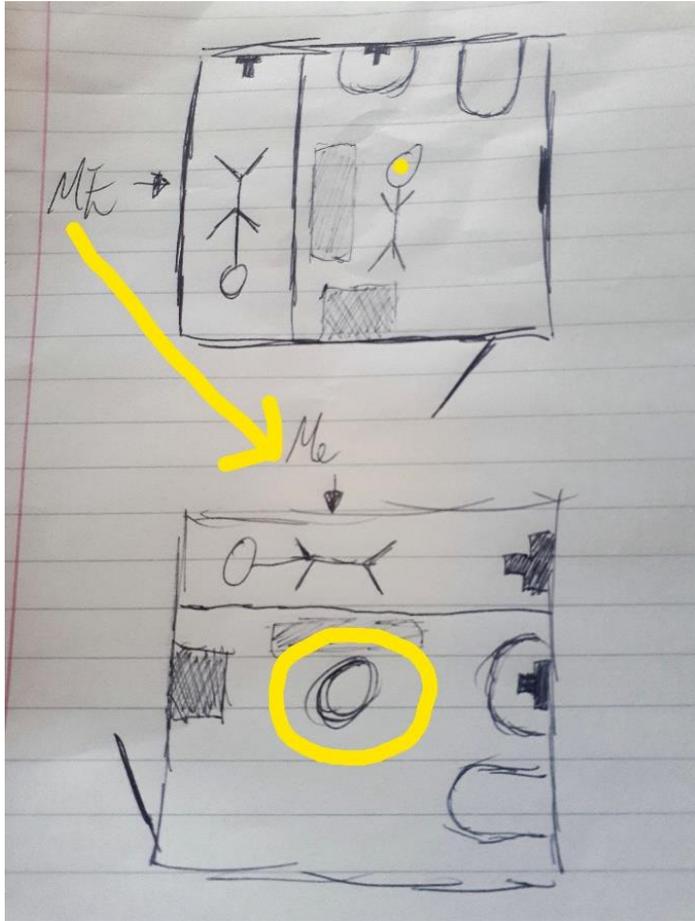
**21: 20 Show hippocampal impairment**  
**72% Self-report positive feeling change**  
**49% Self-report recall improvement**

- Up until now only 2 have trauma impact from personal grief (grandparents)
- From now until August will come "firsts"
- We will re-train on 10<sup>th</sup> & reassess monthly

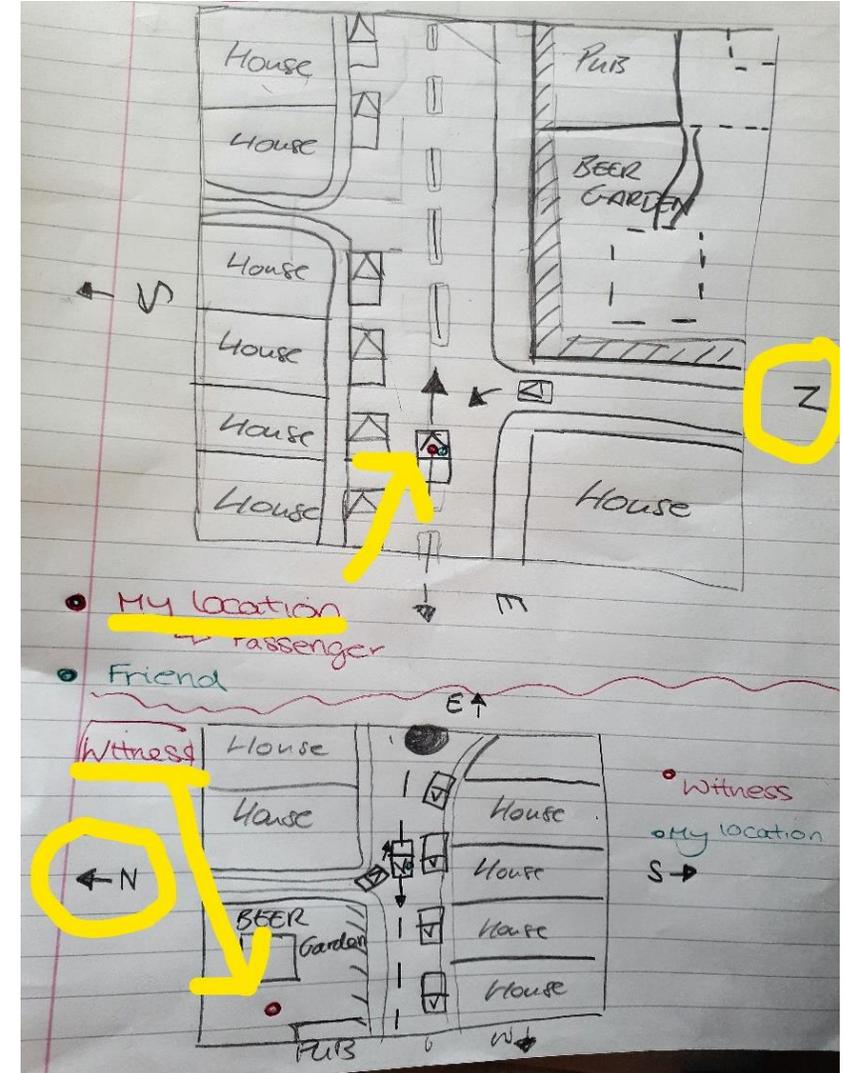


## PITP Trial Sessions: Maps

Sample material from May 2018



**72% Self-report positive feeling change**  
**49% Self-report recall improvement**



## PITP Trial Sessions: Maps

Sample material from May 2018

72% Self-report positive feeling change

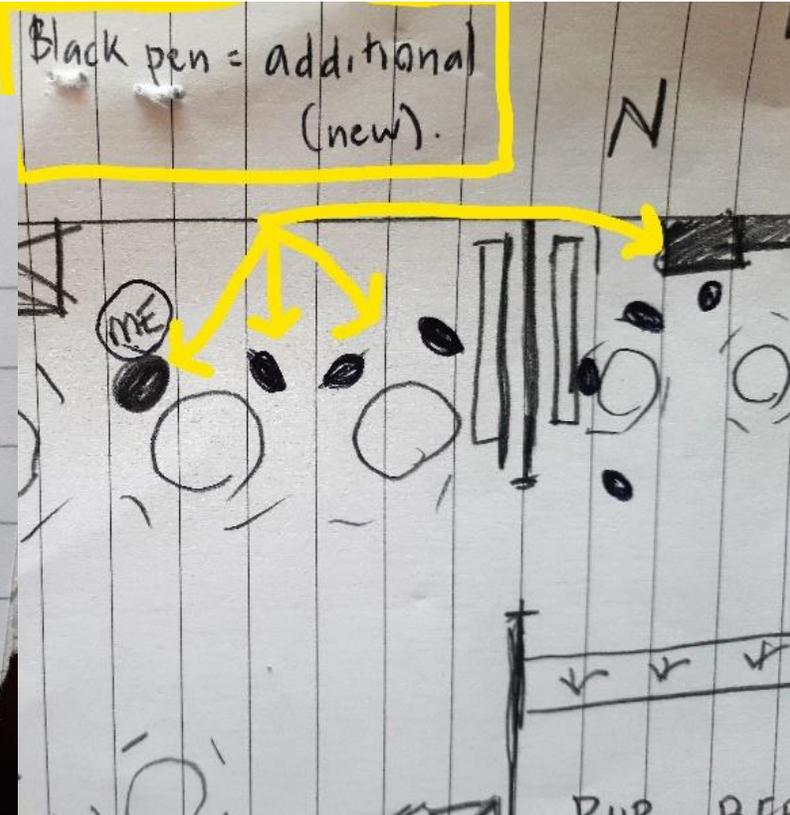
49% Self-report recall improvement

MAP 1

Any more info - how do you feel?

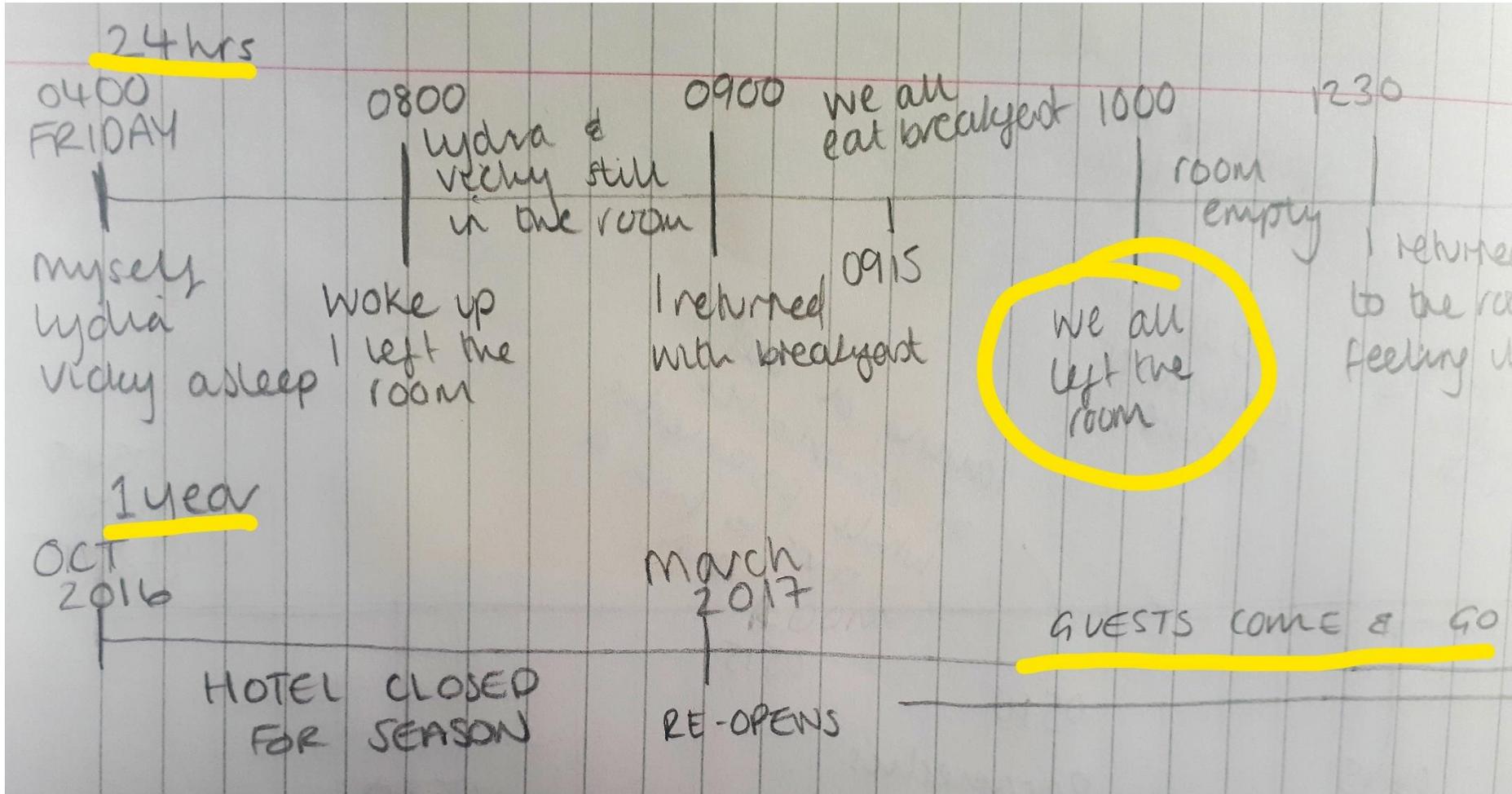
I forget about the lay out of the room and how many people were there, when I look back on my own perspective I focus on very small details which can be confusing but looking at an aerial view, I remembered a computer and other people (present) present.

Makes me see the bigger picture and normalises the incident.



# PITP Trial Sessions: Timelines

Sample material from May 2018

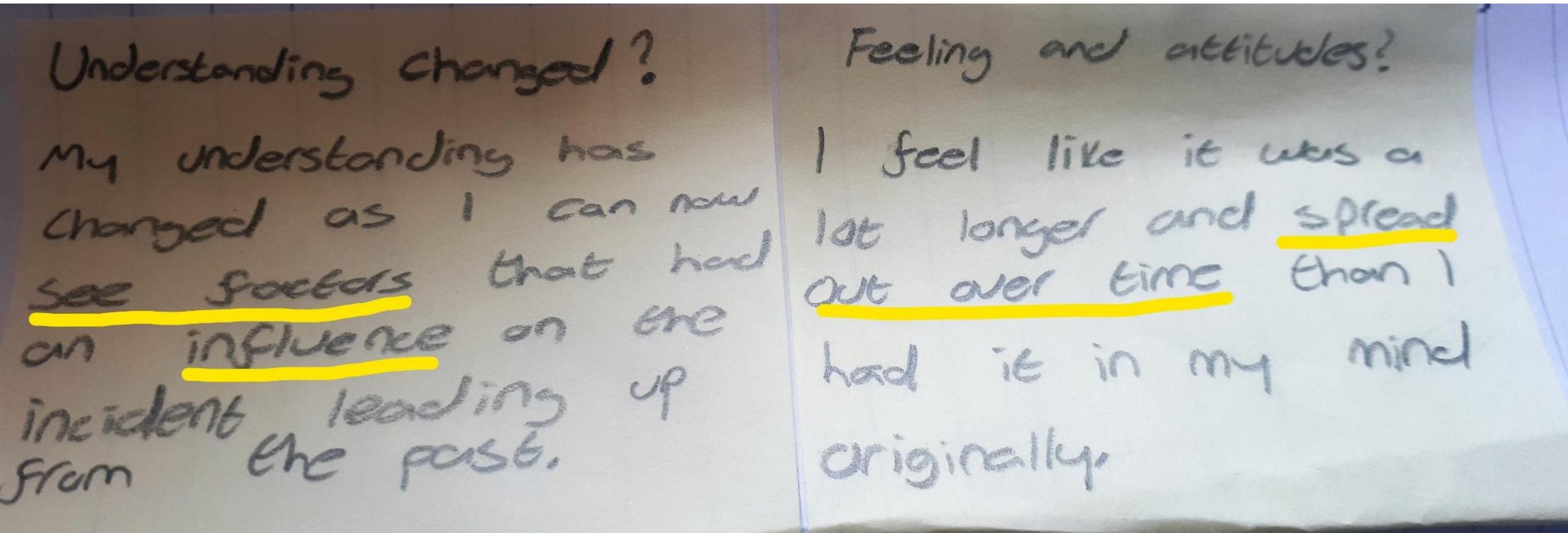


## PITP Trial Sessions: Timelines

Sample material from May 2018

72% Self-report positive feeling change

49% Self-report recall improvement



## PITP Trial Sessions: Timelines

Sample material from May 2018

72% Self-report positive feeling change

49% Self-report recall improvement

① I forgot that there was a person  
with the girl who hit me & also  
I forgot there was a police officer  
nearby.

Tomie Ine worked better for me  
than pictures I remembered more



## PITP Trial Sessions: Consolidation

Sample material from May 2018

③ puts into perspective that  
it's just one day in the greater  
scheme of things. It doesn't  
have a long-term effect.

Remember someone else being  
there, sat opposite me and  
how he spoke to me and  
that he made me feel  
better.

③ Realising that it's just a  
location.  
- I don't relate the incident  
to that place. It's not  
me or what.

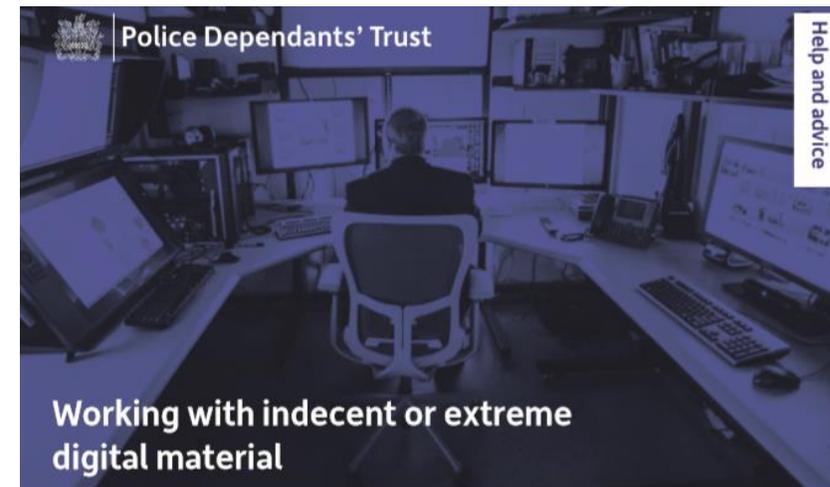
# Understanding atypical trauma exposure CHILD SEXUAL EXPLOITATION

Paedophile Investigation Unit staff, management & therapists (Devon & Cornwall Police)

Interviews and focus groups 2017- 2018

Developed guidance for staff new to processing digital material (May 2018) Operation Torch n = 350

- **Need for verbalisation & honest conversations**
- **Information processing: managing actual input**
- **Work station modifications: conditioning, body**
- **Line management & self- assessment: awareness**



As technology advances, the nature of crime changes. Forces are having to adapt to this with limited resources, and more officers and staff are taking on responsibilities for digital examination of audio and visual evidence. This can often involve material covering distress and suffering, child sexual exploitation, and terrorism propaganda. This is not easy. Here are some basic tips to help you, your colleagues, and your supervisors adjust and respond to this hazardous material.

Focus Prepare and be aware	Accept Unease is actually OK	Check-in Be honest and reflect
<p>Allocate specific time and take 10 mins out each hour.</p> <p>Remind yourself: <i>this is to protect the vulnerable and that you can do it, safely.</i></p> <p>Plan your focus: what do you need to note, assess and record? Stick to it.</p> <p>Use digital or handmade filters to limit your exposure. Separate audio &amp; visual material.</p> <p>Consider wiping your monitor after viewing, or moving to a fresh desk afterwards.</p>	<p>This material is designed to sexually arouse, evoke fear, or even disgust.</p> <p>Your brain and body may respond in uncomfortable ways. This is perfectly normal. The reactions will pass, so try not to identify with them. They are not you.</p> <p>Try temporarily detaching from the material as if it were simulated or fake, if that helps you get through.</p> <p>Think about all those doing this across the UK; you are part of a great wider team.</p>	<p>Ignoring or avoiding your reactions will only delay their impact. Talk to your colleagues.</p> <p>Note down any personal triggers you may have picked up from the material; be aware and maybe share with those close to you.</p> <p>Watch out for unhelpful coping mechanisms in yourself and others (drinking, starting smoking, over-exercising etc.). Suggest time with colleagues.</p> <p>A helpful tool to see how you're doing is available online at <a href="https://bit.ly/2HAsn5X">https://bit.ly/2HAsn5X</a></p>

**When to seek further help and where to go**

If you have been working with indecent or extreme digital material and would like to share your own tips & advice, or if you have any concerns for yourself or a colleague, you can:

- speak to your line manager
- seek advice from the local wellbeing team
- call the Employee Assistance Programme (EAP)
- call Occupational Health

**Start a conversation. Don't go it alone.**



# Understanding atypical trauma exposure COUNTER TERRORISM AND SO15

Interviews & focus groups with CT & SO15 (2017-18)  
Metropolitan Police with partner agency & NCA  
Advising on Well-Being Strategy 2018 - 2023  
Designing support products 2018-2019

- **Post-Incident processing vs digital exposure/BWV**
- **Family liaison: vicarious trauma processing**
- **Framing and pre-conditioning**
- **Compassion management: self-compassion?**



## Understanding atypical trauma exposure FIREARMS

Sussex Police 2018 (see Top Cover 14)

Interviews and focus groups with newly trained firearms officers and managers

Post-incident Procedures: managing trauma impact and achieving best evidence

- **Spatial processing post-incident to boost processing and trauma resilience**
- **Advising on use of tactical observation techniques: response & processing**
- **Memory consolidation and PIMs/PIPs**



# Understanding atypical trauma exposure

## EMERGENCY CALL HANDLING

Dorset Police (2017-2018)  
Interviews & observation  
Call handlers & dispatch  
Designed Force Action Plan 2018-2019  
Training module for new starters and supervisors



- **Use of spatial mapping technology on calls: context and stress response**
- **Information management: context and agency**
- **Managing compassion and respecting self-compassion with peers**
- **Facilitating decompression space: physical body & mental space**



# What are we finding out?

Core components of participants' resilience...



# Real resilience, real voices

“Being able to verbalise, having time to file trauma & watching the mind”

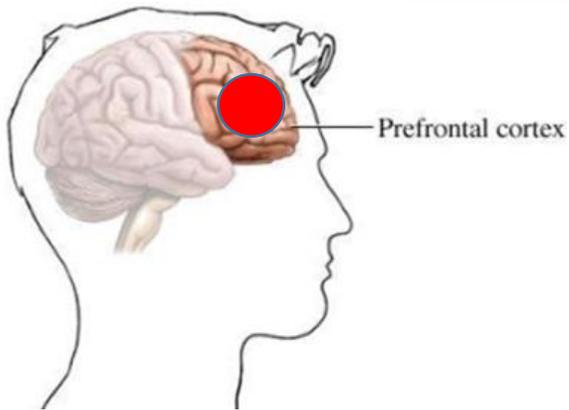
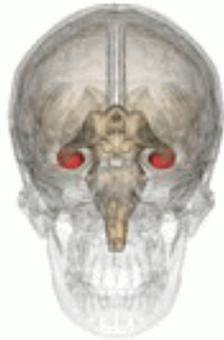
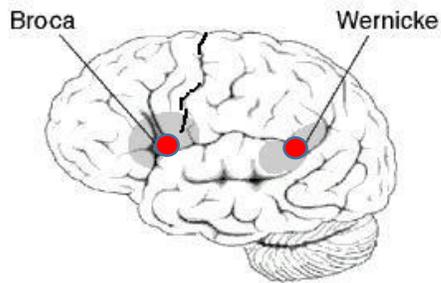


my tolerance to "graphic" images  
my perception to what is  
considered "tragic / violent"  
appears shifted.



# Real resilience, real voices

“Being able to verbalise, having time to file trauma & watching the mind”



“Understanding the science of the brain gives you  
**something to do about it**”  
(PITP trained officer, Durham 2018)

“You can prepare yourself and get into the mind-set  
each time, but it’s **afterwards that’s hard**... when  
you go home” (Counter Terrorism: Digital Exploitation, 2017)

“Having **officers in front of you with their stories** makes  
you feel that hurting *and dealing with it* is part of the job  
(New recruit, GMP May 2018: PITP training)



# **Neuropsychology can translate operationally**

We can bring an understanding of the policing mind to the front line



# Bringing Neuroscience to Policing

MENTAL HEALTH, RESEARCH, TRAINING

28th July 2017

## The Policing Mind on holiday

Some suggestions to step out of vigilance and well-deserve of BEING

### Working with indecent or extreme digital material

As technology advances, the nature of crime changes. Forces are having to adapt to this with limited resources, and more officers and staff are taking on responsibilities for digital examination of audio and visual evidence. This can often involve material covering distress and suffering, child sexual exploitation, and terrorism propaganda. This is not easy. Here are some basic tips to help you, your colleagues, and your supervisors adjust and respond to this hazardous material.

**Focus**  
Prepare and be aware

- Allocate specific time and take 10 mins out each hour
- Limited yourself: this is to protect the assessable and that you can do it safely
- Plan your focus: what do you need to note, responses, separate audio & visual material
- Consider using your monitor after viewing or moving to a fresh desk afterwards

**Accept**  
Unlease is actually OK

- This material is designed to sexually arouse, excite fear, or even disgust
- Your brain and body may respond in uncomfortable ways. This is perfectly normal with them. They are not you
- by temporarily detaching from the material with them. They are not you
- Think about all those doing this across the UK; you are part of a great wider team.

**Check-in**  
Be honest and reflect

- Ignoring or avoiding your reactions will only defer their impact. Talk to your colleagues
- Note down any personal triggers you may have picked up from the material, be aware of your own and others' (abuse, starting packings, own-exercising etc.) Support time with colleagues
- A helpful tool to see how you're doing is available online at <https://bit.ly/2G888GQ>

**When to seek further help and where to go**  
If you have been working with indecent or extreme digital material and would like to share your own tips & advice, or if you have any concerns for yourself or a colleague, you can:

**Start a conversation. Don't go it alone.**

- speak to your line manager
- seek advice from the local wellbeing team
- call the Employee Assistance Programme (EAP)
- call Occupational Health

[www.pdtrust.org](http://www.pdtrust.org)



Tweet

Dr Jessica K Miller @millerjessicak

Increased workload often means police balancing Christmas welfare that works #neuroscienceforpolicing

Home News story Policing minister experience

Police Dependants' Trust



POST INCIDENT TRAINING TRAUMA PROCESSING INFORMATION PACK



ises ies

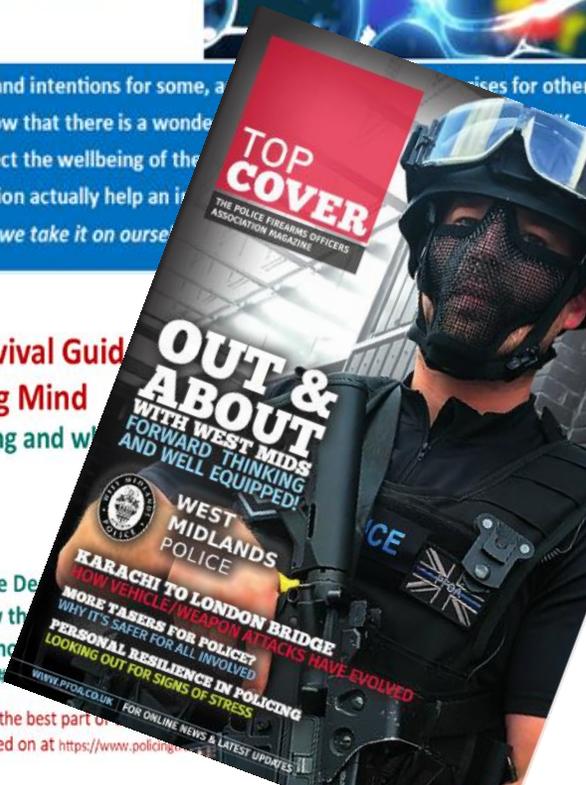


Call Handling Looking after yourself

Christmas Survival Guide for the Policing Mind What's challenging and what help



Police Dependants' Trust



OUT & ABOUT WITH WEST MIDS FORWARD THINKING AND WELL EQUIPPED! WEST MIDLANDS POLICE KARACHI TO LONDON BRIDGE MORE VEHICLE/WEAPON ATTACKS HAVE EVOLVED WHY IT'S SAFER FOR ALL INVOLVED PERSONAL RESILIENCE IN POLICING LOOKING OUT FOR SIGNS OF STRESS

Twitter coverage attracted the best part of which Dr Jess Miller reported on at <https://www.policing>

Communications The Impact of Gene or

Jessica K. Miller

Jan Wiener

1 Faculty of Human Development, University of Cambridge, Cambridge CB2  
2 Department of Psychology, University of Poole, Poole BH12 5BB, UK; smcdougall@poole.ac.uk  
3 Faculty of Health and Life Sciences, Clinical Research Unit, Bournemouth University, Poole, Dorset, UK; j.k.miller@bournemouth.ac.uk  
4 Department of Psychology, Ageing and Dementia Research Centre, Bournemouth University, Poole BH12 5BB, UK; jwiener@bournemouth.ac.uk  
\* Correspondence: jkm35@cam.ac.uk; Tel.: +44-1300-341-015

# Lessons learnt about Police research

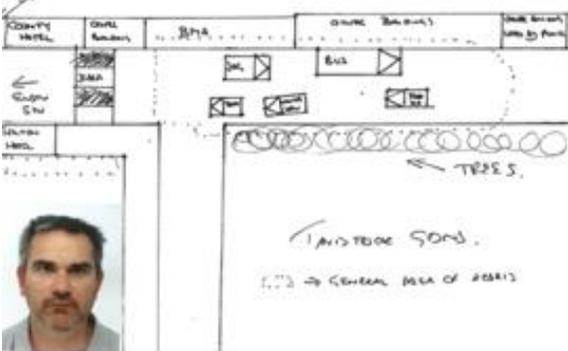
Taming the participants and taming PTSD prevalence



# Lessons learnt about Police research

## Operational police as participants

- Talk about 'our' brain
- Ask if you make sense
- Respect practicalities of the working day
- Don't take "no change or no opinion" as a given
- Living examples, role models and reconstructions
- Spend time in their working environment



# Lessons learnt about Police research Post-Traumatic Stress Disorder (PTSD)

- Scale of PTSD issue unquantified
- 'Self-report' in force surveys –unclear diagnoses
- Coded as stress or anxiety in sickness data
- Stigma and fabrication
- Clinical trials and RCTs limited in effect sizes
- Controlling variables (historical, environmental & genetic conditions)

**Trauma Management In UK Policing Survey (EWCS Oct 2018)**  
**NEW PTSD 5 item screen, 'diagnoses' data and intervention uptake**  
Force level benchmarks for PTSD prevalence, diagnoses and interventions

**Police officers and post-traumatic stress disorder: discussing the deficit in research, identification and prevention in England and Wales**

**Jim Foley and Kristina Massey**  
Canterbury Christ Church University, Canterbury, UK

## Operational policing demands mental resilience

Interventions, procedures, training all involve neuropsychology

- Trauma Risk Management (TRiM)
- Post-Incident Procedures (PIMs or PIPs)
- Image Exposure Training and now Body Worn Video (BWV)
- Family Liaison
- Tactical Armed Response
- Existing *ad hoc* resilience training



## Expanding in partnership

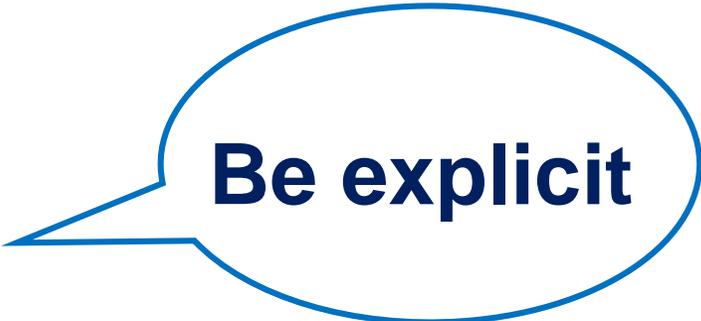
### Our 'Wish To Do' List

- Specialisms: Tier 5 Interviewing, post terror & SIO training (2017-2018)
- ! Body Worn Video upgrade (2<sup>nd</sup> generation): immediate download
- Policy & legal implications: Post-Incident Procedures (2017)
- National Police Wellbeing (Minister's Group January 2018)
- Contract evaluation: TRiM, EAPs, psychological services & assessment
- Academic development: RCT, observation study & first UK police trauma management dataset for EWCS (2019)



## Nice ideas, but where do I fit in?

### Our responsibility to the Policing Brain



#### Be explicit

- Speak positively about trauma impact
- Support & encourage mental practice
- Verbalise the unspeakable
- Practice contextualisation as habit



#### Watch the Implicit

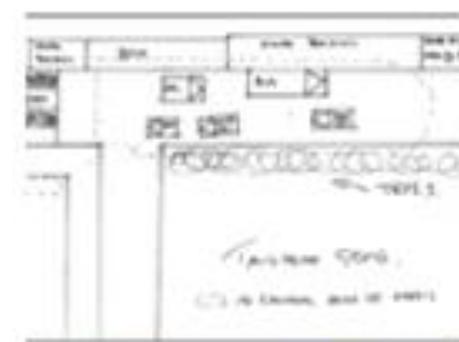
- Be aware of non-verbal cues
- Respect cumulative trauma
- Be sensitive to associations
- “Police Family” & “The Job”



## Nice ideas, but where do I fit in?

### Activate the Policing Brain in your work

- Start the conversation
- Share papers, techniques and new guidance
- Make time for brains around you to process experiences healthily
- Find positive examples of applying awareness of the Policing Brain already out there



Working with indecent or extreme digital material

As technology advances, the nature of crime changes. Forces are having to adapt to this with limited resources, and more officers and staff are taking on responsibilities for digital examination of audio and visual evidence. This can often involve material covering distress and suffering, child sexual exploitation, and terrorism propaganda. This is not easy. Here are some basic tips to help you, your





# Our commitment

## Taming the Wicked Brain

- Inform those who protect the Policing Brain *about* the policing brain
- Empower those with responsibility with practical insight in the workplace
- Encourage individuals to access services & skills *their* brains need most
- Promote the conversation and raise awareness about the Policing Brain
- Protect diminishing police resources and deliver genuine resilience
- Stand by partners' collective commitment to future policing brains



# Support from and thanks to...

Trauma Resilience in UK Police Steering Group

Special thanks to....



**Police Dependants' Trust**

- Gill Scott-Moore, CEO (PDT)
- Dr Brendan Burchell (University of Cambridge)
- Prof Chris Brewin, Clinical Psychologist (UCL)
- Chief Constable Andy Rhodes (National Police Wellbeing, Lancs Police)
- Alex Peart (Research Assistant, PDT)
- Mark Rowley (Formerly Metropolitan Police)
- Sarah-Jane Lennie (Doctoral Researcher)



@millerjessicak #neuroscienceforpolicing #policingbrain #WelfareThatWorks