



Llywodraeth Cymru  
Welsh Government

POLICY AND STRATEGY

# Behavioural observations of pilot events in Wales

Outlines customer behaviour at pilot events and compliance with COVID-19 safety measures.

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## **Abstract: executive summary**

Within the context of reopening society in the summer of 2021, as we move away from 'lockdown,' the Welsh Government (WG) are allowing gatherings of people at a number of pilot test events. Behavioural observations at some of the

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test events are supporting this process by informing the broader 'reopening' process in ways that can minimise COVID transmission risk. Guidelines are in place to support the operation of such events and this work made observations with the primary aim of understanding patterns of behaviour during these events. We were particularly interested in four key factors: how

1. context within a venue,
2. environmental design,
3. staffing and social norms, and
4. time across an event, affected personal protective behaviours of social distancing; face covering use and hand hygiene.

Event management and planning specific to events were also considered through this work.

Behavioural data collected suggest that compliance of attendees across events was generally good, but with very clear indications that adherence levels are shaped in a systematic way by the environment, situational cues, and the passage of time (during the events). Some instances of large-scale non-adherence to personal protective behaviours were documented. Overall, there were three main situations where behavioural adherence broke down, under conditions where:

1. where stewards were not present
2. where there was a lack of environmental signalling (including physical interventions or communications)
3. later into the events when circumstances were less constrained and individuals were less cognitively vigilant i.e. fewer external cues to promote appropriate behaviour, and reduced cognitive control in individuals.

Ongoing behavioural observations at events can add precision and specificity, and hence identify critical risk situations where extra effort is required. Furthermore, triangulation with complimentary data such as epidemiological, air quality, self-report and event plans enables a more accurate view of risk and COVID-safety. Observations of behaviours, in terms of basic counts, and around antecedents and responses, provides an objectivity that adds significantly to surveys and event reports. Finally, an individual's intentions are not always

matched by their actions, and so behavioural insights can help identify situations and contexts where people are most likely to require additional support to ensure COVID Personal protective behaviours and hence protect society.

## Key recommendations:

1. Social expectation: it is important to give clear communications about the behavioural expectations before and during event, including alignment to prevailing Alert Level
2. Crunch-points and flow: the movement of individuals and groups at an event should be modelled and prototyped by event organisers and be included in event planning.
3. Stewards and staff: staff training and practice during events is critical - around methods to support adherence; in terms of role-modelling; and for individual/collective protection.
4. Environmental design: the use of environmental triggers should be optimised external signals are the primary drivers of behaviour at events, as people 'fall-back' on pre-COVID habits. In unstructured areas, clear communications (including stewarding) and signage can aid reflective risk evaluation and behavioural decisions.

## Introduction

### Rationale

Humans evolved as social animals and much of our behaviour focuses on the development and maintenance of relationships. Furthermore, there is evidence at behavioural and neuroscientific levels, that we are 'herd' animals and derive a deep-rooted comfort and sense of security in group settings (TiCS 2009).

Unfortunately, a key driving force in contagious disease is that transmission risk is greatest when people gather together. Research in the early stages of the Covid Pandemic identified a key role for behavioural science in understanding and supporting Governmental decision-making in covid-safe policy. For

example, in May 2020, Bavel and colleagues (Bavel et al., 2020) suggested key elements of a behavioural science repertoire that could inform the covid response.

## **A selection of topics and behavioural sciences relevant during a pandemic:**

### Threat perception:

- threat
- emotion and risk perception
- prejudice and discrimination
- disaster and panic

### Leadership

- trust and compliance
- identity leadership
- ingroup elevation

### Individual and collective interests

- zero-sum thinking
- moral decision-making
- cooperation

### Science communication

- conspiracy theories
- fake news
- persuasion

### Social context

- social norms
- social inequality

- culture
- political polarisation

## Stress and coping

- social isolation and connection
- intimate relationships
- healthy mind-set

An underlying tenet in this approach is an acknowledgement that there are multiple drivers of human behaviour (Kahneman, 2011), and hence an effective approach to covid-safe behaviours will only be realised by harnessing these insights to identify the key drivers and key interventions. Nonetheless, it is important to recognise many people have made great efforts to adhere to the restrictions in place and practice personal protective behaviours throughout the course of the pandemic. Data collected throughout the pandemic in Wales indicate the majority of people self-report social distancing, regular hand washing and use of face coverings where required (Welsh Gov, Dec 2020). In addition, the UCL COVID-19 Social Survey (UCL 2021) indicates low levels of test-seeking behaviour with rates, at certain times across the pandemic, significantly lower than likely necessary for infection control. In other words, whilst people have ‘good’ intentions, these might not always be followed by ‘good’ actions. This has been emphasised by one of very few behavioural observational studies to date looking at Covid transmission (Fitzgerald et al., 2021). Behaviour in pubs was observed in Scotland prior to the second lockdown and whilst publicans put measures in place to enable COVID-safe activity, there were many recorded instances of non-adherent behaviour.

The value of the ‘behavioural insights’ approach was originally recognised in observations that non-conscious behavioural drivers sometimes override intentions (such as social norms, habits or contextual factors including physical architecture). As such, a failure to maintain two metre distance may reflect historical normative influences (i.e. how close people usually stand to have a conversation) even when there is a conscious intention to distance. This “intention-action gap” is well recognised in the literature and is reflected in writing as far back as Plato’s republic. A simplified model is presented in Figure 2 below whereby two pathways vie for behavioural control (Thaler and Sunstein,

2009; Kahneman, 2011). Ideally they work in combination to support the direction and energy for underlying behaviour. However, in certain circumstances a difference in processing leads to conflict in behavioural control. System 1 is likely to predominate (phylogenetically older, closer link, in neural terms, to behavioural control; Levant and Parkinson, 2014). If the data suggest that an intention-action gap exists in covid-safe behaviours, how can we effectively close this gap?

## Dual-process approach to behaviour

### System 1: HOT

- Older system, more direct control over behaviour
- Reflexive, fast, automatically triggered
- Easy, default, habitual
- Heuristic (norms, prejudice, modelling)

### System 2: COLD

- Newer system in evolutionary terms
- Reflective, slow, intentionally triggered
- Effortful, requires planning, limited capacity
- Problem solving, active thought, debate

Contemporary psychologists and behavioural economists have developed models and tools to close this gap (Kahneman, 2011; Thaler and Sunstein, 2009, Michie et al., 2011) and the first stage of any approach is to understand the key behavioural drivers in a given situation or context. Subsequently, interventions can be designed that map onto those behavioural drivers to support effective change (and in the current context support maintenance of safe behaviours). A particularly effective framework to identify/prioritise behaviour determinants is the COM-B model (Capability, Opportunity, Motivation (influences of) Behaviour (Michie et al., 2011) which we utilised for the current work.

# **The COM-B model and Theoretical Domains Framework (TDF): used to identify type of behavioural barriers**

## **COM-B model: psychological capability**

TDF domains:

- knowledge
- cognitive and interpersonal skills
- memory, attention and decision process
- behaviour regulation

## **COM-B model: physical capability**

TDF domain: physical skills

## **COM-B model: physical opportunity**

TDF domain: environment

## **COM-B model: social opportunity**

TDF domain: social influences

## **COM-B model: reflective motivation**

TDF domains:

- social/professional role and identity
- motivations and goals
- belief about capabilities

- optimism
- beliefs about consequences

## COM-B model: automatic motivation

TDF domains:

- reinforcement
- emotion

The purpose of the current work was to apply such an approach to support the Welsh Government's ambition to open up society, following the second lockdown between December 2021 and May 2021. The primary aim was to provide behavioural insights at pilot 'mass gathering' events in Wales, to compliment other data, in identifying the most effective measures to support a safe society with the prevailing (relatively low levels) of COVID-19 in communities.

## Hypothesis

The overarching hypothesis is that whilst individuals might intend to maintain protective behaviours at these events, the fact that they are less constrained (compared to lockdown) and in familiar settings (preponderance of old habits), it is likely that behaviour at the events is driven by automatic triggers rather than prior intention. These triggers could be internally elicited (existing cognitive schema of how to behave at a venue) or externally driven (social norms, response to activity during the event). The specific research questions reflected factors known to elicit automatic behaviours, as well as from prior insight in covid-related behaviour (Fitzgerald et al., 2021; Bavel 2020).

# Research questions

## RQ1 Context / Setting within venue

To what extent did personal protective behaviours (social distancing, face covering, hand hygiene) differ across different situations

## RQ2 Environmental / Architectural influences

To what extent does the physical environment facilitate personal protective behaviours?

## RQ3 Staff and people

What role did staff play in influencing adherence to personal protective behaviours?

## RQ4 Time

To what extent did personal protective behaviours change over the duration of the event?

## RQ5 Management of event

How did the management of attendees impact on personal protective behaviours?

# Methodology

Observations of behaviour were carried out at two events: Tafwyl Festival

(15 May) and Celtic Manor Conference (20 May).

## **Dependent variables**

### **Personal protective behaviours**

The primary focus was on the three core primary protective behaviours - social distancing, face covering, and hand hygiene.

## **Independent variables**

### **Context/Setting within venue**

The context/setting within the venues included different situations such as around entry, during breaks (of performance or conference proceedings), on exit, at toilets, and other identifiable attendee-crunch points. The format of food and drink provision was also observed at both events to determine compliance with personal protective behaviours.

### **Environmental/Architectural influences**

The physical environment was observed, and details recorded, in particular seating arrangements, floor markings, signage, and one-way systems.

### **Staff and people**

Social norms of staff, stewards and volunteers, in addition to attendees were observed, to identify staff behaviour such as:

- Intervening when a breach of personal protective behaviours was observed in event attendees

- Actively clarifying and reinforcing expectations of regulations/guidance
- assessing observed differences between staff and attendees in their behaviours

## Time

Observations were repeated at different time-points through-out the events to assess any changes in behaviours.

## Management of event

The management of attendees was observed on entry to and exit from the events. The grouping/cohorting of attendees was observed, particularly in relation to maintenance/adherence to social distancing/face covering use. Additionally, the antecedents, behaviours, and consequences were recorded when breaches to personal protective behaviours were observed. The format of the events and testing management were noted in terms of how this facilitated COVID-19 personal protective behaviours and affected transmission risk, respectively.

When considering the assessment of social distancing in queues at events, a number of methodological considerations are worthy of note - firstly, social distancing was difficult to measure as queues were (by their nature) frequently changing/moving. Secondly, those who were counted as partially compliant were people who were queueing with what the researcher assumed was another person from their bubble. However, it is possible that attendees were with people outside their bubble, unbeknown to the researcher. It is also important to note here that not keeping a 2m distance from those within an attendee bubble was not considered a breach, particularly at the Tafwyl event. In this respect a set of observational definitions were agreed within the researcher team before the events.

## Participants

Participants were staff and members of the public attending the events. This was an observational study and so participants were aware their behaviour was being monitored.

## Procedure

This methodology was informed by the approach taken by the UK Government and commission of external support, including that of Movement Strategies to deliver a similar piece of work, and also by the small extant literature on behavioural observation during COVID-19 (e.g. Fitzgerald et al., 2021). Researchers worked in pairs (following COVID-safe guidelines themselves e.g. social distancing; face coverings; regular hand washing at all times) and observed behaviour at key events. They recorded behaviour at specific locations (previously identified with the event organisers) for short periods of time. Reliability of measurement was assessed between the two observers. Data was aggregated and analysed based on STANP 'safe behaviour' acronym (space, time, air, number, [vocal] projection), and to what extent each of the multiple layers of protection were in place – following the 'Swiss cheese' metaphor in recognising that multiple layers create a more resilient system to minimise risk of failure overall.

## COVID-19 hierarchy of control

Most effective to least effective:

Elimination (not applicable)

Substitution (not applicable)

Engineering controls (ventilation, physical barriers)

Administrative controls (training on distancing, distance markings and signage)

PPE/RPE (masks, respirators, gloves)

- **Insitution of Occupational Safety and Health (IOSH): COVID-19 risk**

### Procedure for behavioural observation

An “observation plan” (OP) was developed in advance for each event. This was co-produced with event organisers, along with the researchers who made the observations. Pairs of researchers (employees of PHW) travelled independently to the event and met at a pre-specified location. They then worked through the OP gathering data, as outlined in Annex A. Each discrete observation was collected via an MS Form completed via the researcher’s mobile phones, and in a discrete manner. Data were quantitative (in the form of observational counts of adherence) and qualitative in the sense of observed antecedents, behaviours and consequences (this ABC tool is recognised as supporting examination of behaviours, triggers and impacts/changes. In circumstances where it was necessary for a researcher to go indoors, they adhered to all guidelines (e.g. wearing a fluid resistant surgical mask at all times, maintaining 2m distance from all others) and stood close to ventilation sources (e.g. a window). The data were cross-checked and collated for analysis.

### Escape plan for researchers carrying out behavioural observations

A specific “escape plan” (EP) was created in advance of the events detailing how the researchers should behave if certain ‘red flag’ events occur. These included a crowd surge; aggressive or criminal behaviour developing; someone approaching within 2m; and an evacuation of the premises. Specific detail on red flag events and the EP were co-produced as part of the OP. In the event of compromised safety, or the perceived risk of such, the plan noted that researchers would leave by a pre-determined safe route away from the area of risk. The specific details were identified for each location on the event OP. In some cases, multiple routes were identified. The primary goal of the EP was to enable researchers to reach a safe space (outside, with clear space to move, in a low human-density location) in the shortest possible time and hence maintain the safety (both COVID and otherwise) of the individual. These plans did not need to be enacted in the events observed.

# Ethics

## Specific ethical considerations for behavioural observation

The research involved observing individuals and groups covertly. This approach was necessary to ensure the behaviour detailed was 'true' and not influenced by social desirability or other factors. There was no harm or distress that could be incurred through the data capture within the study, but it was noted that if a researcher was to be challenged, they would be honest about the research, answer any questions posed, and, at the earliest opportunity, leave the current observation point for the next on the OP.

The proposed methodology (as noted here) was approved by the Chair of the Psychology Academic Research Ethics Committee, School of Psychology, Bangor University on 11 May 2021.

A further consideration was the safety and welfare of the observers. A small but mitigated risk of Covid acquisition was identified prior to the events. It was noted and understood that their behaviour should be fully compliant with government guidelines and they should take additional steps to protect themselves (such as ensuring they remained in well-ventilated locations when indoors, only remaining indoors for 10 mins at the most in one location). Additionally, they were also to follow the Standard Operating Procedures and regimes at the events themselves (e.g. being tested on arrival at Celtic Manor). Finally, we undertook further mitigating actions such as providing fluid resistant surgical masks, and individual hand sanitiser supplies for each of the researchers. The research was a recognised work activity for Public Health Wales staff, and so they were covered by workplace indemnity. Detailed risk assessments were prepared and submitted and approved by Public Health Wales' Facilities, Estates and Compliance Lead, for both events.

# Results

## Research questions and variables of interest

### **RQ1: context/setting within venue**

To what extent did personal protective behaviours (social distancing, face covering, hand hygiene) differ across different situations?

### **RQ2: environmental/architectural influences**

To what extent does the physical environment facilitate personal protective behaviours?

### **RQ3: staff and people**

What role did staff play in influencing adherence to personal protective behaviours?

### **RQ4: time**

To what extent did personal protective behaviours change over the duration of the event (perhaps due to fatigue or habituation)?

## **Management of event**

How did the management of attendees impact on personal protective behaviours?

# Findings

## **RQ1: Did personal protective behaviours (social distancing, face covering, hand hygiene) differ across different contexts/ settings within the venue?**

### Tafwyl

#### **Social distancing**

Adherence to social distancing varied across different situations. The highest amount of adherence was observed when attendees were sat at their tables (overall 92% adherence).

When queuing for the toilets, full adherence reduced to 37%, with 49% of attendees partially adhering. The majority of those who were not at all compliant were within 1m distance of others. The situations with the lowest amount of social distancing were when attendees entered and exited the venue, when none of the attendees were keeping a 2m distance from either within their bubble or between their bubbles and large groups congregated on the exit route. In terms of staff, overall 97% were not socially distanced when collecting drinks from the bar area.

#### **Face coverings**

Mask wearing, once inside the castle gates was generally high. On average, 96% of attendees wore a face covering when making their way from security checks to their tables. Similarly, 89% of attendees wore a face covering when attending the toilets and all staff fully adhered to wearing a face covering at the bar area. Compliance with mask wearing substantially reduced on exit when only 64% of attendees were fully compliant. Moreover, whilst queuing outside the castle gates, prior to reaching bag check and security adherence was low,

with only 50% of attendees wearing a face covering.

## **Toilet use**

The majority of attendees observed arrived at the toilets individually, with short queues only beginning to form between artist sets. It was observed that where groups of attendees did arrive at the toilets together, these were primarily younger females <30 years old. It is likely that a number of factors influence the decision young women took to go to the toilet in a group, such as social norms, safety concerns and social support for removing/re-zipping clothing.

## **Celtic Manor conference**

### **Social distancing**

Across all observations, attendees socially distanced nearly two-thirds of the time, with approximately a quarter being within 1 metre of others. This varied across different situations. The highest amount of adherence was observed when listening to speakers and having lunch, where nearly all attendees adhered. When waiting for the conference to start a reduction in social distancing was observed, with approximately three-quarters of attendees adhering. Similarly, approximately three-quarters of attendees socially distanced whilst queuing for tea and coffee.

The situations with the least amount of social distancing were when attendees were moving between rooms. Less than a fifth of attendees socially distanced at this time, with approximately a third staying more than a metre away from other attendees. Just under half did not socially distance at all. Furthermore, one situation was observed where only a small proportion of attendees socially distanced - this was after a break out session had finished, notably with no staff presence. There was no mixing evident between wrist-banded cohorts. Similar to low levels of adherence to social distancing when moving between rooms, only approximately a fifth of attendees stayed 2 metres away from others when exiting the venue. In terms of staff, overall, the vast majority of staff members

socially distanced during the arrival and testing process, while a small proportion did not socially distance but remained 1 metre away from others. On one occasion during a session, due to limited space in the room only a very small proportion were 2 metres away from others, most being approximately 1 metre away from other attendees.

## **Face coverings**

Adherence to wearing face coverings was extremely high (fully compliant) on arrival and testing and when moving between rooms.

## **Toilets**

Attendees were provided with wrist-band cohort toilets, at which they arrived individually. No trends were observed with the facilities.

## **RQ2: How do environmental features impact personal protective behaviours?**

### **Tafwyl**

The outdoor nature of the event supported adherence, and a number of environmental interventions were implemented to facilitate COVID-safe behaviours in attendees. Big screens displayed prompts to wear masks and social distance between artist performances, however it is not known how frequently attendees looked at screens when artists were not being displayed. The seated style of event supported each group in maintaining a 2m distance from others, which was observed by most attendees most of the time.

Sanitiser stations were placed frequently around the event, with flags to increase visibility to attendees, however these were not used by the vast majority of people (evidenced by observations and by large amounts of sanitiser left at end of day). Visible signage was limited, and not ideally located in key areas or in

immediate eye line of attendees for maximum impact. Further, there were no floor markings in the toilet area, queues, and main walkways or bar areas which could have supported adherence.

## **Celtic Manor**

The large amounts of space available at the Celtic Manor Resort permitted cohorting of attendees from access to egress, and provided the opportunity for a 2m distance to be observed throughout the duration of the event, providing that other barriers and facilitators were rectified. This was, however, not observed in practice, with a large number of breaches, as referred to in this report. Hand sanitiser was placed in key points throughout the resort, however these were rarely observed being used. Amongst other factors, one potential explanation is that attendees were often carrying items in their hands, limiting their ability to engage in sanitisation.

## **How were food and beverages provided?**

### **Tafwyl**

Attendees were not permitted to approach food and beverage vendors directly; all ordering was done via an online platform, with staff delivering food and beverages. This was observed as facilitating a reduction in movement of attendees, as no attendees were observed approaching vendors.

The provision of food and beverages, however, did present a risk to staff in the form of reduced adherence to personal protective behaviours. Within vendor outlets, staff were clustered together within 2m due to space restrictions and the need to fulfil orders, with variable mask wearing observed across food vendors.

The bar is an area of concern in reducing adherence to personal protective behaviours; it was set up so that a small number of staff would pass drinks from the bar to a table placed under a gazebo, which were then collected by other members of staff. The table acted as a bottle neck, with multiple orders being

placed there at a time. This resulted in around 7 staff being consistently within 2m of each other around the small table. Whilst there was opportunity for staff to social distance, as there was a large amount of space around the table, it became the norm to cluster, which meant that most staff did not social distance the majority of the time observed.

## **Celtic Manor**

Beverages were provided by staff at tea/coffee stations. Attendees were required to queue at a social distance, and approach the staff when requested. An issue was identified within the queuing, with large numbers of attendees in breach of 2m distancing in the latter parts of the queue. Distance increased as they neared the tea/coffee station, with frequent staff intervention. Distance markers were placed on the floor as attendees became closer, however visibility of these was limited due to their size and contrasting carpet pattern, which made it difficult to discern markers.

Lunch was provided in three different formats; a buffet, bento box, and seated meal with food delivered by staff. All were designed to facilitate social distance, with no observed breaches. Lunch in this format further reduced bunching in doorways/corridors, as attendees tended to leave the area after they had finished eating, which was a steady and managed flow rather than a mass exit.

## **RQ3: How did staff behaviour impact personal protective behaviours?**

### **Tafwyl**

Staff adherence to personal protective behaviours were notably worse than attendee adherence, particularly where social distancing was concerned. While adherence to social distancing at tables decreased amongst attendees over time, staff member's adherence was consistently poor throughout the day. In contrast, all staff adhered to face covering use throughout the day in comparison

with attendees whose compliance reduced over the course of the event, however this was not without issue. Full adherence was still low with some members of staff opting not to wear at all and others wearing below the nose or chin.

## **Celtic Manor**

Staff and attendee behaviour was largely similar at the Celtic Manor, with breaches observed in both groups. Attendees were more likely to be in breach of the 2m distance, whereas staff were more likely to be in breach of face covering use. Staff behaviours were observed as more adherent in the presence of attendees than when they felt they were not being watched, indicating a key facilitator for this group.

## **What were notable antecedents, behaviours and consequences?**

### **Tafwyl**

A cluster of concerning behaviours observed in staff was during the steward briefing. The information provided to staff prior to commencement of event was in accordance with regulations and guidelines. Staff were reminded of the importance of ensuring that attendees were adhering to personal protective behaviours, however the briefing, pre-event discussions and reminders appeared to have limited impact on staff adherence, particularly within steward groups. An example of this was that during the briefing, staff were told explicitly that they were not social distanced by the person delivering the briefing, but made no attempt to correct their behaviour. Behaviours that would be the norm for stewards, such as ushering attendees to toilets or tables, were reinforced during the briefing, but COVID-safe behaviours such as not getting within 2m of attendees unless absolutely necessary, or encouraging hand sanitiser use, were not reinforced. Finally, the person delivering the briefing explained to stewards that theoretically they did not need to wear masks, but that they were wearing

them as it was a test event, which was a missed opportunity to encourage adherence to this behaviour.

A notable antecedent was the need/desire to converse with others, which frequently resulted in the removal of face coverings to discuss with colleagues, which was exacerbated by the increasing noise level. Stewards, in particular, were observed as breaching social distancing with attendees, which occurred frequently at tables as many stewards had attended the event previously as attendees or stewards, so knew many attendees.

A further notable antecedent was group photos. The norm in such instances is for a group to place their arms around each other and move close together to fit within the frame. Multiple instances of group photos were observed, in which behaviour was consistent with breaches of 2m distance. The consequence of such was that this closeness was maintained after the photo, with groups remaining in a huddle.

A marked difference between the behaviour of security staff in comparison to stewards was observed. Whilst stewards engaged in some intervention, particularly around face covering use, observations of intervention in social distancing behaviours were very few. Security staff on the whole appeared more comfortable/confident intervening with attendee behaviours than volunteer stewards. It was observed that security guards identified breaches quicker, and were quicker to intervene than volunteer stewards, resulting in greater changes of attendee behaviour.

## **Celtic Manor**

As observed in Tafwyl, social engagement/networking with others was a notable antecedent to many breaches of social distancing or removal of face coverings. Where individuals had a pre-established relationship, they were observed as being pleased to see each other, which resulted in many elbow bumps, or closeness of contact.

## **RQ4: Did personal protective behaviours (social**

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# distancing, face covering, hand hygiene) change over the duration of the event?

## Tafwyl

### Social distancing

#### 1. Entry and egress (attendees)

##### 1a. Entry

On average 39 attendees were admitted into the castle per minute. None of the attendees were keeping a 2m distance from either within their bubble or between their bubbles on entry into the castle. This was recorded at numerous entry points, including outside the castle gates in the queue, at bag check and once inside the castle gates on making their way to their tables. However, once admitted into the castle, attendees walked to their tables without gathering.

Outside the castle gates, in the queue for bag check/test results check, no social distancing behaviour was observed in a queue of 45 attendees.

##### 1b. Egress

Personal protective behaviours at egress was notably poorer than at access. The flow rate on exit was lower; on average 11 people per minute left the venue. However, in contrast to access, groups of around 10 and 12 people each consistently congregated on the exit route. Amongst these groups there was no social distancing and around 29% were not wearing face coverings. Large amounts of hugging was observed across attendee groups.

On notification that the event was ending, a presenter encouraged attendees to remain seated until told to leave, reinforcing the desired behaviour. There was, however, an extended period of time between the event programme finishing

and the stewards facilitating egress >30 minutes. Over this period, attendees became increasingly loud and disruptive, which may have been the impact of alcohol and boredom. Control over the event notably broke down when the time from event finish exceeded 30 minutes, with large numbers of attendees mixing tables and increasing noise. Stewards were focussing more heavily on the louder/disruptive attendees than the large breaches of social distancing occurring, which may have been the result of prioritisation of need and professional judgement of risk.

At egress gate, security staff intervened to prevent attendees leaving premises with alcohol, but not to facilitate COVID-safe behaviours.

## **2. Tables (attendees)**

At the start of the evening, 100% of attendees adhered to the social distancing guidelines, staying sat at their tables with their bubble.

Mid-way through the evening, compliance began to reduce but overall was still considerably high. On average, 88% of attendees were fully compliant, around 8% were partially compliant (not staying at tables, but still keeping a distance) and the remaining were not compliant (sitting down at other people's tables).

Similar proportions were recorded towards the end of the evening; on average 88% fully complied with social distancing between groups, 4% of people partially adhered and 4% did not adhere.

A small number of breaches occurred when attendees switched tables as the event reached its latter stages, which increased incrementally over time. An observed antecedent was that these attendees knew each other socially, and therefore took the opportunity to mix after extended periods apart. There was no intervention by stewards for this behaviour, however, it is likely that this behaviour went unnoticed by stewards as it was impossible to keep track of which attendee belonged to which table. A method of easily identifying, such as wrist bands, would have assisted stewards in this task.

### 3. Toilet queuing (attendees)

No time trend was evidenced with regard to attendees social distancing on entry to toilet.

### 4. Bar area (staff)

The proportion of staff social distancing at the bar area did not change over time. On average, 97% of staff were not socially distanced. There was a flow rate of 17 people per minute at this area, with around 7 member of staff at the bar at any one time.

## Face coverings

### 1. Entry and egress (attendees)

Very few face coverings were worn in the queue outside of the castle gates. Stewards were present, however no intervention was provided to attendees to social distance or wear face coverings. It appeared that it was the social norm to remove/not wear a face coverings within the queue to talk to others/socially mix.

During counts, 96% of attendees wore a face covering on entry, once inside castle gates and passed the security point. On egress, the wearing of face coverings whilst still inside the castle substantially reduced, compared to ingress. On average 64% of attendees were fully compliant, 10% were partially compliant (with the mask covering their mouth but not nose) and 27% were not wearing a face covering at all.

### 2. Toilet queuing (attendees)

The use of face coverings when accessing and queuing for the toilets did not change over time.

### **3. Bar area (staff)**

There was no change in adherence to face coverings wearing by staff over time. All staff fully adhered to wearing a face covering at the bar area.

Staff all wore face coverings and visors at the bar area and when moving around the event, and did not remove these during observation periods. Staff did, however, spend periods of time talking with attendees at the tables, and on occasion, removed their face coverings to talk to attendees. Notable antecedents were when the music was playing and was particularly loud, and duration of the event, indicating that increased noise and increased duration of an event decreases people's ability to hear others, and removing face coverings appears to be a favoured solution.

## **Celtic Manor conference**

### **Access and egress**

Attendees arrived and left individually, and in a steady trickle rather than arriving on mass.

### **Social distancing**

There was no evidence of social distancing changing over time by staff or attendees. The most notable changes were within situations rather than the timing of the event.

### **Face coverings**

Similarly, there was no evidence that the wearing of face coverings changed over time. Attendees wore face coverings all of the time at various time points throughout the day.

## **RQ5. How did event management and structure impact personal protective behaviours?**

1. How did the event programme/management of attendees facilitate personal protective behaviours?

### **Tafwyl**

The outdoor nature of the event presented a meteorological challenge, as the sudden onset of rain prompted staff to huddle under umbrellas. Whilst the weather cannot be controlled for, providing all staff with an umbrella would reduce the likelihood of this behaviour occurring. Further, the nature of the event being a music festival reduced opportunities for personal protective behaviours, as the noise level prompted people to get closer together to be heard, and remove face coverings.

### **Celtic Manor**

The nature of the event and the attendee audience likely influenced adherence to personal protective behaviours as the attendees were highly motivated to reopen their industry/sector, so were probably keen to demonstrate adherence. Frequent reminders of the event being a test event and the need to prove viability probably reinforced this.

The need for attendees to move around the resort as part of the event programme increased opportunity for breaches of personal protective behaviours, which were observed in all instances. Attendees did not maintain 2m distance when moving between situations, and whilst staff intervention was effective on occasion, it was not consistent. Attendees will need support to maintain 2m distance when moving around.

Cohorting (facilitated via the provision of coloured wrist bands) appeared to have a significant impact on attendee behaviour. The establishment of group norms resulted in clear differences in behaviour across groups. Two groups were

observed as largely adherent throughout the event, however one group contained a minority of vocal, more disruptive attendees, who frequently went against advised/encouraged behaviours. This behaviour persisted throughout the day and had a ripple effect to others, indicating the impact of group norms on the facilitation of personal protective behaviours.

Signs directed attendees to testing via colour of their wrist bands, and chairs were placed 2m away from one another. On entrance, attendees were told to sit in a chair and remain in that chair, with testing carried out at these chairs. Attendees were instructed to wait in their chairs until their result was returned.

As guests filtered through into the testing area, they were directed to their seats which were well managed and socially distanced. All guests were seated socially distanced with face coverings in place, and there was no movement from the seats until advised to do so by staff in colour coded tops.

## Discussion

The behavioural data collated indicate that in general compliance by attendees across the two events was good, but with very clear indications that adherence levels are shaped in a systematic way by the environment, situational cues, and the passage of time (during the events). In this sense, ongoing behavioural observations at events can add precision and specificity, and hence identify critical risk situations where extra effort is required. Furthermore, triangulation with complimentary data such as epidemiological, air quality, self-report and event plans would enable a more accurate view of risk and COVID-safety. Observations of behaviours, in terms of basic counts, and around antecedents and responses, has provided an objectivity that adds significantly to surveys and event reports.

Notwithstanding individuals' intentions, the number of people adhering to personal protective behaviours is clearly affected by the environment, situational factors, and passage of time at an event. These influences appeared to be systematic and thus if fully understood can help improve COVID safety at future events.

Notable across the events monitored was the lack of social distancing by very large numbers at the points of access and to an even greater extent egress, and also at minor gatherings before and after the event. This was compounded (in terms of COVID transmission risk) by the lack of face covering protection in a notable minority, particularly at the point of leaving the evening event in particular. Specific settings within events also led to increased spatial density of attendees, such as queueing for toilets, and mass movement between activities/rooms. Bunching also occurred outside of some events. This has highlighted the importance of considering the whole 'envelope' of the event from pre-arrival through to post event dispersal, but also raises the question of event remit extending beyond the boundaries e.g. groups gathering listen to Tafwyl event outside of the venue.

Cohorting/batching the attendees, with managerial and environmental controls (e.g. designated tables, or in attendance groups) appeared to help managing bottlenecks. More generally, environmental and service restructuring including seating plans, floor markings, food and beverage delivery (and remote ordering) and physical barriers/pathways worked well to shape the behaviours of large numbers of attendees. There was evidence that live communications at events, to remind people of requirements and positively acknowledging adherence, also acted to 'reset' behaviours and improve adherence. There was some evidence of group's norms reinforcing both pro-social and less helpful behaviour.

There was clear value, but variability, in staff advising/intervening in attendee behaviours. Staff and stewards acted as role models as well as providing explicit guidance around appropriate behaviour (offering advice, correcting failures of adherence). However, there was behavioural evidence of 'perceived immunity to risk' in some staff groups. A sustained/widespread lack of physical distancing, and some removal of masks (to aid communication), was observed in these groups. Some systems around management of food and beverages acted to decrease social distancing in staff, as they clustered around service points. Given the high number of contacts some staff have, adherence to personal protective behaviours in this group should be a focus. Clarity on role definition and training around advising in ways that sustain pro-social behaviours, and systems to maintain that input throughout the event would help increase compliance.

Hand sanitiser was widely available at the events, however it was not used by the vast majority of people (evidenced through observations and volume of sanitiser left at end of the events). Salient signage, station positioning and consideration of the activity being undertaken (i.e. carrying items, limiting the opportunity to easily use sanitiser), needs further consideration.

A finding relatively under-reported elsewhere was that adherence waned with the passage of time through the events? There are a number of factors that might account for this including: increased alcohol consumption (where available); fatigue in inhibitory control; habituation and reduced anxiety in a novel context. This temporal factor is not well understood and requires further investigation.

Overall, behavioural adherence broke down under conditions where: stewards were not present; there was a lack of environmental signalling (including physical interventions or communications); and later in the event where the situation was less constrained and individuals were less *cognitively vigilant* i.e. fewer external cues to promote appropriate behaviour, and reduced cognitive control in individuals.

One interpretation of these data is that individuals at these events are using external stimuli and signals to make decisions and control behaviours, rather than dynamically attempting to evaluate risk and act accordingly. An important tactic then is to focus efforts to provide, and maintain, such cues at events. Where these were present, adherence level were higher. Additionally, some events are inherently less structured and may lead to greater risk. A secondary tactic in these circumstances would be to provide frequent communications, alongside steward presence/action, to support reflective decision-making and hence adherent behaviour.

## Specific behavioural recommendations for ‘mass events’

Social expectation – It is important to give *clear* communications about the behavioural expectations before and during event, including alignment to the

prevailing Alert Level. If adherence to personal protective behaviours is advised as part of a new normal, a further honing of environmental restructuring (e.g. floor markings, clients flows, batched entry/exiting), supported maintenance of the behaviours (announcements, active staffing) and priming of clients/guests before arrival (e.g. mental models to follow) are needed. These should be determined by the specific risk factors of the event.

Crunch-points and flow – the movement of individuals and groups at an event should be modelled and prototyped by event organisers and included in event planning. A combination of environmental restructuring and use of a ‘service design’ approach will reduce risk of bottlenecks and bunching (Changing Behaviour by Design, 2013; Design methods for developing services could assist with this aspect). Whilst this might not fully remove bunching, it should reduce the duration of it, and therefore the associated risk. This could be augmented with advice from staff to encourage maintenance of physical distance and continuing the pace of flow. The prioritisation of needs and addressing risks other than COVID transmission in this space are clearly recognised.

Stewards and staff – Some staff appeared to ignore personal protective behaviours. In doing their job, staff are likely to interact with many more people at an event and so (1) reflect a frontline staff at high risk; and also (2) are more likely to have potential to seed transmission. Staff training is critical, because they also act as role-models (social norming influence) and can support behaviours in situations which are otherwise unconstrained and uncertain.

Environmental design –environmental triggers should be optimised external signals are the primary drivers of behaviour at events, as people ‘fall-back’ on pre-COVID habits. In unstructured areas, clear communications (including stewarding) and signage can aid reflective risk evaluation and behavioural decisions.

## Wider recommendations

Bavel et al. (2020) conclude their article on the role of behavioural science in

COVID control, by noting that following the Spanish Flu pandemic a paper published in science (Soper, 1919) gave three key factors as barriers to prevention: poor risk literacy in the population, humans as social animals, and the fact that behaviour is often unconsciously driven and hence a continuous risk to transmission. Our observational findings reported herein are consistent with these messages and perhaps reflect a lack of appreciation as to the utility of behavioural science for effective policy and practice. Investment in building capacity in behavioural science in government (and partners) is vital in order to facilitate the routine development of policies, interventions and communications campaigns that are behaviourally informed at an early stage. This will help to address the intention-action gap that is often found. Building capacity will also need to be accompanied by effective implementation of these behavioural insights as widely as possible within government (and partners), which in itself should be behaviourally informed, identifying current facilitators and barriers, for example. Toolkits are available to facilitate this process, with the Behaviour Change Wheel (incorporating COM-B; Michie et al., 2011) EAST (2014) and Mindspace (2010). Recent advice for national government from Public Health England (2021) may be helpful, suggesting the Behaviour Change Wheel as an overarching framework along with the APEASE criteria to optimise each step of behavioural assessment, intervention design and implementation (acceptability, practicability, effectiveness, affordability, side-effects and equity).

One interpretation of the current work resonates with the first and third ‘Spanish Flu factor’ – that humans generally show poor risk literacy and that their behaviour is often driven by unconscious, automatic cues which put them in greater danger of disease transmission (Soper, 1919). This provides clear direction for policy as we move towards a more open society where individuals will be expected to make dynamic behavioural decisions based on changing situational factors. Firstly, at some point in the future COVID-19 is expected to become endemic at low levels in society. In these circumstances it would be unrealistic to expect all personal protective behaviours to continue and so longer-term risk literacy campaigning/activity might be beneficial in supporting better situational decision-making. Indeed, given the future risk of recurrent pandemic, or other health crises, one might imagine this could begin in Schools – a better understanding of risk more broadly would likely benefit individuals and society far more broadly (e.g. risk-taking and life expectancy).

Whilst there is little evidence to date that people are getting better at risk judgements across the pandemic, some data (Williams and Parkinson, unpublished) is suggesting that repeated presentation of COVID-19 risk situations does indeed improve individual's ability to identify risk variables and make more accurate risk judgements. Secondly, until vaccinations programmes are complete and COVID-19 is endemic at low prevalence, it is likely that there will be an ongoing need to support all protective behaviours as society becomes more open, particularly at large gatherings. In this scenario, the most effective approach will be to assume that individual and group behaviour will predominantly be driven by external automatic cues, and hence environments should be designed to support COVID-safe behaviour. Without additional support it is likely that social cues such as norms and existing habits will predominate.

In conclusion, this study made behavioural observations at pilot events as part of the Welsh Governments move out of lockdown. Whilst there was general adherence to protective behaviours, there were significant systematic breakdowns that increased the risk of transmission of COVID-19. These could be understood through a behavioural science lens, for example in terms of dual-process theory or COM-B, and as such are tractable. Four key factors were social expectations, identification of crunch-points and flow, stewarding and the role of observable norms, and the effective use of environmental design. The application of behavioural science can significantly impact the ongoing efforts to protect Wales as we move into a more open society.

## References

### [Achieving behaviour change: a guide for national government \(2021\)](#)

Bavel, J.J.V., Baicker, K., Boggio, P.S. et al. (2020). [Using social and behavioural science to support COVID-19 pandemic response](#). *Nat Hum Behav* 4, 460–471

### [Changing Behaviours by design \(2013\) Local Government Association](#)

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## **Design methods for developing services. Technology Strategy Board and Design Council**

### **EAST: Four Simple Ways to Apply Behavioural Insights (2014)**

Fitzgerald N et al., (2021) Managing COVID-19 Transmission Risks in Bars: An Interview and Observation Study. *Journal of Studies on Alcohol and Drugs*, 82(1), 42–54 (2021).

John A, Pidgeon N, Roberts C, West J, Gould A, Parkinson J et al. (2021) *Pandemic and beyond - using behavioural science to inform policy and practice*. Technical Advisory Group report for Welsh government

Kahneman, Daniel (2011) *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux.

Levant B., and Parkinson J.A. (2014) Positive emotions and reward: Appetitive systems – Amygdala and striatum. *Reference Module in Biomedical Sciences*. Elsevier. 24-Oct-14 doi: 10.1016/B978-0-12-801238-3.04498-6

Michie S, et al. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Sci* 2011;6:42. <https://doi.org/10.1186/1748-5908-6-42>

### **Mindspace: Influencing behaviour through public policy (2010)**

ant B., and Parkinson J.A. (2014) Positive emotions and reward: Appetitive systems – Amygdala and striatum. *Reference Module in Biomedical Sciences*. Elsevier. 24-Oct-14 doi: 10.1016/B978-0-12-801238-3.04498-6

Raafat RM Chater N, Frith C (2009) Herding in humans, *Trends in Cognitive Sciences* Vol.13 No.10. doi:10.1016/j.tics.2009.08.002

Soper, G. A. The lessons of the pandemic. *Science* 49, 501–506 (1919).

Thaler, Richard H., and Cass R. Sunstein. *Nudge*. Penguin, 2009

### **UCL Covid Study (2021)**

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Go to <https://gov.wales/behavioural-observations-pilot-events-wales-html> for the latest version.

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Welsh Government: **Survey of public views on the coronavirus (COVID-19): 4 to 7 December 2020 (Dec 2020)**

Welsh Government: **Technical Advisory Group Policy Modelling: December 2020 and January 2021 (Dec 2020 - Jan 2021)**

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