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Assembling atmospheres, encountering care: Risk, affect, and safety in the cystic fibrosis clinic

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ABSTRACT

This paper explores the design of hospital environments, in order to investigate how issues of infection control, spatial layout, and embodied practices intersect in the accomplishment of 'care-ful' geographies. Specifically, we trace how the material environments of three UK cystic fibrosis (CF) clinics are assembled in order to orchestrate routines that minimise the risk of cross-infection between patients and safeguard their wellbeing. Our analysis of these clinics, derived from interviews with staff and patients and ethnographic observation, reveals the importance of environmental factors in brokering affective atmospheres that can alleviate patients' anxieties. Theoretically, we draw on Ben Anderson's understanding of how affect works as, simultaneously, an object-target, bodily capacity, and collective condition, in order to draw out the architectural atmospheres of the CF clinic. That is, we first report how clinic staff anticipate cross-infection risks and configure the physical environment in order to minimise these risks. We then describe the embodied practices of patients as they move through hospital spaces in ways that protect themselves, and others, from cross-infection. Finally, we analyse how this choreography of material environments by staff and the movement of patients' bodies combine to evoke a shared understanding of the clinic as a safe space, in contrast to perceptions of the hospital as a threatening environment. Our focus on the affective atmospheres of the CF clinic allows us to develop an in-depth analysis of the role of materialities, mobilities, and design in the social construction of risk, especially in a post-COVID pandemic age.

1. Introduction

This paper explores the design of hospital environments, in order to empirically trace clinical encounters that are spatially arranged in order to minimise the risk of cross-infection amongst cystic fibrosis patients. Cystic fibrosis (CF) is a life-threatening condition characterised by frequent respiratory infections and increasingly impacted by current trends of antimicrobial resistance (Brown et al., 2021a). In CF care, antibiotic treatments may suppress infections in patients but not eliminate them entirely, and thus there is an increased risk of highly resistant and potentially fatal pathogens circulating amongst people with CF, if measures are not taken to restrict social contact within patient groups (Russo et al., 2006). Given this context, for a CF clinic within a hospital setting there is a requirement for an increased vigilance of staff to minimise the risk of cross-infection between patients, and so careful attention to orchestrating the attendance of patients with different

strains of pathogens so they do not meet is needed (Brown et al., 2020, 2021a). Our analysis, then, begins from the premise that patient safety within clinical settings is 'a spatial achievement' (Mesman, 2012: 32), requiring spatial awareness and competence on the part of hospital staff and patients themselves, in order to enable a working environment that is safe for those using it.

In this paper, we describe how the material environments of three UK cystic fibrosis (CF) clinics are assembled so as to orchestrate routines that minimise the risk of cross-infection between patients for whom contact with new strains of pathogens can be potentially fatal (Lowton and Gabe, 2006). Our analysis of these clinics is derived from interviews with staff and patients, as well as ethnographic observation of how they used the hospital environments during routine clinical encounters. To elicit in-depth understandings of how patients and staff work with hospital spaces to create safe clinical encounters, we asked participants from each study site to annotate architectural plans and discuss how

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they used their buildings. And to capture an impression of the busyness of clinical space, we collaborated with a visual artist who made *in-situ* sketches of the buildings in order to record their layout and design, their materialities, and the movement of people and objects within the hospitals (Brown et al., 2021b). Our findings reveal the importance of environmental factors in shaping spaces that can alleviate patients' anxieties and, instead, foster spaces of sociality, safety and even belonging (Duff, 2016), despite the strict segregation of patients that typically occurs within CF clinics (Russo et al., 2006). In short, our study reveals the significance of architectural atmospheres in brokering a sense of wellbeing within therapeutic spaces and, moreover, enabling and extending practices of care (Martin et al., 2019; Martin and Roe, 2022).

In our analytical approach, we position our study alongside the work of other researchers who have argued for the importance of attending to atmospheres in understanding everyday practices of care and enabling processes of healing and recovery (Duff, 2016; Sumartojo et al., 2020). More widely, we build on recent work that focuses on architectural atmospheres, because these afford an understanding of the work involved in planning the *feel* of spaces, and how the embodied actions of their inhabitants affect the *experience* and *use* of the built environment (Bille et al., 2015; Böhme, 2017; Borch, 2014). Most substantively, we draw on Anderson's theorisation of the imbrication of affect and atmosphere, and his understanding of how affect works as, simultaneously, an object-target, bodily capacity, and collective condition (2014), in order to draw out the architectural atmospherics of the CF clinic and structure our empirical analysis in the paper. Specifically, within the CF clinic, we interpret affect as an 'object-target' to describe the intended outcomes of those planning clinical encounters in the clinics; we use 'bodily capacity' to refer to the ways in which patients and staff affect the experience of others through their embodied actions and behaviours; and we use 'collective condition' to connote the shared accomplishment of ward atmospheres in which care was articulated via everyday practices and routines. Our focus on the affective atmospheres of the CF clinic allows us to develop an in-depth analysis of the role of materialities, mobilities, and design in the social construction of risk, and the achievement of a space of security and sterility in clinical settings, which is especially relevant in a post-pandemic age.

2. Affect, atmospheres, and the choreography of clinical space

Schillmeier and Domènech (2009) have argued that to think about care 'entails a reflection concerning practices of space' (288); our interest in the design of hospitals to minimise experience of risk is built on an understanding that 'spatial competence' is key to practices of patient safety (Mesman, 2009: 1711). Within the CF clinic, where concerns over infection control, spatial layout, and embodied practices intersect in the provision of care for patients, we can see a more generalised setting for the 'circuits of hygiene' researchers have previously described as characteristic of surgical space (Fox, 1997). In surgical space, the movements of staff, patients, and medical instruments are orchestrated in such a way as to minimise risk, in a highly elaborate performance of care for the patient, but also to demonstrate professional competence in the accomplishment of sterile space (Fox, 1997; Rawlings, 1989). In his research, Fox described a precisely designed and painstakingly monitored environment, and yet even in the highly controlled environment of surgical space, the achievement of a secure atmosphere can only ever be provisional and contingent on the social practices of those working in the space. Care is always a profoundly situated social practice (Schillmeier, 2017); throughout the hospital, as Sumartojo and colleagues found in their ethnographic research on the daily life of a psychiatric inpatient unit, ward atmospheres 'emerged through routine, anticipatory and mobile practices of care that were themselves forms of everyday design' (2020: 30). The everyday design work they found refers to the ways in which hospital staff – whether clinical staff, cleaning staff or catering staff – configured and adapted elements within their

wards in the course of their work, inculcating 'an atmosphere in which staff feel safe and patients feel cared for' as a result (Sumartojo et al., 2020: 37).

Sumartojo and colleagues define atmosphere as 'a particular felt quality of place constituted by the many different elements that ongoingly configure to give rise to it, and that this includes how people anticipate the environments that atmospheres imbue' (2020: 29). Their use of atmosphere as a sensitising device to the characteristics of effective clinical environments echoes Duff's approach to understanding how 'an attunement to affects, spaces and bodies' may be helpful in the staging of 'atmospheres of recovery in the promotion of an assemblage of health' (2016: 59). Such approaches build on a delineation of atmosphere as an embodied experience of the material world that is attuned to their spatial affects, and where atmosphere is a 'connective factor' that simultaneously connects and disrupts boundaries between subjective and objective apprehensions of the environment (Bille et al., 2015: 33; see also Anderson, 2009; Edensor, 2017; Edensor and Sumartojo, 2015). This oscillation in the experience of atmospheres between the subjective and the objective can lead to an understanding of the word as theoretically ambiguous (often in a productive way Bille, 2015), but Gernot Böhme has argued that atmospheres be 'conceived not as free floating', and thus somehow nebulous in their affects, 'but on the contrary as something that proceeds from and is created by things, persons or their constellations' (1993: 122). Böhme's argument is important in that it invites us to attend to atmospheres and their affects empirically, to follow their production, and to think through the implications of atmospheres as they are operationalised in the built environment. Much has been written about the ambivalent and powerful use of architectural affects within commercial environments (e.g., Allen, 2006; Thrift, 2004), but within a healthcare context, Duff argues, 'work on affective atmospheres avails a means of tracing some of the mechanisms by which capacities like hope, sociality, meaning and empowerment ebb and flow for bodies in recovery' (2016: 62).

For Ben Anderson, the ambiguity of affective atmospheres is productive in terms of enabling us to 'reflect on how something like the affective quality, or tone, of something can condition life by giving sites, episodes or encounters a particular feel' (2014: 137). For Anderson, atmospheres are a portal through which to understand the working out of affect in quotidian experiences, social encounters, and political discourses. He defines affects as 'both objects and mediums for forms of intervention that aim to produce and reshape life' (2014: 19), and suggests making 'affect into a kind of sensitising device; a way of disclosing life that orientates inquiry to how multiple forms of mediation come together in encounters' (2014: 79) – the encounters between bodies, objects, and environments that shape everyday experiences. He builds on Sedgwick (2003) argument that affects 'can be, and are, attached to things, people, ideas, sensations, relations, activities, ambitions, institutions, and any number of other things, including other affects' (2003: 19). Within a healthcare context, this means that the experience of security may be attached to the experience of anxiety. Affects are generated in the responses of individual bodies to their environments, and these individual experiences are generative of new architectural atmospheres (Martin, 2021).

Indeed, definitive distinctions between the individual and their environment are untenable when analysing the transmission of affect (Brennan, 2004), and so Anderson's writing on affect is alive to the variegated ways in which affect works at different levels. Thus, he characterises affect as, simultaneously, an object-target, a bodily capacity, and a collective condition (2014). Anderson's definition of affect as an object-target refers to the strategies by which those with power set the parameters of social life for others. Within the very specific context of the CF clinic, we draw on the idea of affect as an 'object-target' in order to trace how clinic staff anticipate cross-infection risks and configure the physical environment in order to minimise these risks. That is, the architectural atmospheres of the case study sites did not emerge in a vague way, but in large part because of the intentions of staff

members attempting to create a clinical space that was experienced as safe by their patients. Anderson's second understanding of affect as a 'bodily capacity' is derived from the encounters between bodies (both human and non-human) in order to affect (and be affected by) each other. Within the context of the CF clinic, we use the idea of 'bodily capacity' to document the embodied practices of patients as they move through hospital spaces in ways that protect themselves, and others, from cross-infection. These practices were guided by patients' understandings of their buildings, and how they could work with their physical features to feel safe within the space through everyday acts of adaptation (Gieryn, 2002), such as opening windows to create better ventilation. Anderson's third understanding of affect as 'collective condition' refers to the 'structures of feeling' that are forged in shared understandings, even if implicit and embryonic, of social conditions across cultural groups, and which act to limit the experience of everyday life (Williams, 1961, 1977). We draw on this third understanding of affect so as to analyse how this choreography of 'care-ful' environments by staff and the movement of patients' bodies combine to evoke a shared understanding of the CF clinic as a safe space (Milligan and Wiles, 2010). At their best, these 'care-ful geographies' allow patients an experience of 'becoming-secure in place' (Duff, 2016: 69), in contrast to wider perceptions of hospital atmospheres as threatening environments (Edvardsson et al., 2003). They help to enable a kind of covenant of patient safety, within which 'circuits of hygiene' are borrowed from the sterile environments of operating theatres (Fox, 1997), and enacted within CF clinics situated amidst the more open wards of the general hospital. Anderson's tripartite definition of affect, then, offers a way of thinking through and structuring the findings of our empirical study into the design of CF clinics in the UK, which we will offer further details of in the next section.

3. Methods

This paper presents data collected between September 2018 and August 2019 during a study of three CF clinics based in England. Site 1 is the smallest of the three clinics, providing care for 35 adult patients. It is based in a 1970s hospital, where corridors are narrow and busy, the out-patient clinic is held in a busy department alongside clinics for other conditions, and where in-patient and urgent care is provided on the respiratory ward on a different floor. Site 2 has approximately 400 CF patients, making it the largest of the three clinics, with a high degree of dedicated space for its patients. Site 2's out-patient services are in a 1990s wing of an infectious disease hospital, originally built in the early 1900s, with wide corridors; its in-patient areas are in a different hospital site, elsewhere in the city. Site 3 provides care for over 300 CF patients, with a shared waiting area for patients of their clinics. Site 3's out-patient services are based within a busy department built during the early 1990s, and its in-patient care occurs in segregated wards for patients with different bacterial infections. These clinics were selected because of their varied architectural design, building history, and different scales.

Our participants were recruited from within the CF team at each hospital in order to gather the opinions of different categories of clinical staff (we interviewed consultants, nurses, physiotherapists and health-care assistants), as well as other ancillary staff (we also interviewed cleaners and estates staff). The CF team, in turn, helped to recruit patients at each site from different bacterial cohorts, and we also spoke to family members too. Finally, we held interviews with architects who had been involved in CF clinic design. Overall, we interviewed 34 hospital staff, 15 patients, 2 family members and 3 architects; because some participants were interviewed more than once, this resulted in 70 interviews overall. The 70 interviews included 45 graphic interviews (Bagnoli, 2009), where participants annotated architectural plans to indicate their routine pathways within the building, as well as areas of cross-infection risks. These interviews, then, sensitised us to the geographies of risk in the hospital spaces. The graphic interviews were

subsequently followed by 25 walking interviews (Clark and Emmel, 2010), where Buse accompanied participants on journeys through their clinics, using the environment to prompt reflection about their routine use of clinical space. These interviews enriched the findings from the earlier interviews, allowing the researchers to experience the atmospheric qualities of the spaces laid out in the hospital plans previously discussed in the graphic interviews. Through the walking interviews, Buse was able to tap into participants' sensory perceptions of the hospitals; observe how they worked within and adapted their environments in the pursuit of safer movement through their spaces (Sumartojo et al., 2020), and also record the mundane material culture of the clinic, by taking photographs of areas within their hospital that participants thought were significant. To obtain an even more granular level of understanding of the clinics, ethnographic observations were carried out in out-patient clinics and in-patient wards, in addition to 72 hours of 'targeted ethnography' (Sage and Dainty, 2012) involving observations of clinics during those days on which CF patients were present. Over a period of 9-10 months, Buse returned to each site and observed the flow of patients, staff, and things during CF clinics. Some visits were accompanied by Chapman, a visual artist, whose sketches illustrate the movement of people and objects in communal spaces, such as waiting areas, check-in points, and corridors – these drawings act as a form of sketch reportage (Fig. 1). This combination of fieldnotes and sketches in the ethnographic observations, allied with the walking interviews and graphic interviews, was designed in order to offer a multi-faceted understanding of the 'circuits of hygiene' in the CF clinics (Fox, 1997), and how spatial practices are key to the accomplishment of patient safety (Mesman, 2009). In addition, these creative approaches helped us to supplement traditional methods in order to better understand questions of movement, sensory experiences of place, emotional reactions of our participants, and the atmospheric qualities of the environment (Law and Urry, 2004).

All data were analysed using NVivo, in order to trace a wide range of themes and subthemes across our different types of textual and non-textual data from the interviews, as well as Buse's fieldnotes. Codes across the data were discussed in a series of analytical sessions undertaken by all authors. This paper draws on the focused themes of atmosphere, pathways, risk, and safe spaces. Ethical approval for our project was secured through the UK NHS Research Ethics Committee. The names of all participants and participating hospitals have been replaced with pseudonyms.

4. Findings

Atmospheres, Anderson writes, 'envelop people, things, sites' (2014: 139), but they are rarely there as a naturally occurring phenomenon; rather, atmospheres in the built environment present themselves because of the strategies of those that plan, manage, and maintain the space. Sometimes, atmospheres feel tangible because of the embodied movements and reactions of those inhabiting the space in particular ways, and at particular times. At other times, atmospheres seem to coagulate because of an understanding, shared amongst many social groups, about what type of space this is, what it signifies, and what it enables. These different understandings align with Anderson's argument that affect works in social situations as, simultaneously, an object-target, a bodily capacity, and collective condition. We use these different definitions to trace how affective atmospheres are planned, enacted, and understood in the CF clinics we studied.

4.1. Object-targets

Böhme (2013) has argued that 'it can be said that atmospheres are involved wherever something is being staged, wherever design is a factor' (paragraph 3); in the CF clinic, the work of strategically 'staging' the environment so that it minimises risk and, instead, evokes a feeling of patient safety is carried out by numerous hospital and professional



Fig. 1. The physio trolley in the corridor (Source: Chapman).

staff. On a day to day basis, accomplishing a sense of patient safety is in large part a responsibility of medical staff, as Rachel explained:

as a team, and as CF clinicians... we then think that we understand the patient journey completely and fully... We try and then look at what was the pathway when the patient came through, and any other patients, that we realise that we might perceive that people are arriving, they're coming to their single patient room with the door closed, then they're leaving again. And we perceive that as a safe kind of very defined process. (Physiotherapist, Site 1)

There is an expression of professional pride here in the account of how a circuit of hygiene is managed within a busy hospital environment, where hygiene is not only an expression of routine behaviour, but also a higher level knowledge that articulates 'the promotion and protection of health' (Fox, 1997: 653). From the same site, we heard the description of a routine arrival of a patient to the clinic, which follows a systematic process:

so when the patients come through... there's a nurse who would be on clinic on that corridor, and she would let us know if the patient has arrived... In theory, what should happen is one of us would then sit them into one of the rooms and close the door... So they should never be sat waiting here or here. (Emma, CF Nurse Specialist, Site 1)

Here the staff members' vigilance offers an example of the mode of anticipation that Sumartojo and colleagues name as an important aspect of creating atmospheres of care in hospital space (2020). This sense of anticipation organises clinical work, even if it can never guarantee the smooth running of the space in predictable ways. Areas where patients can wait alongside other patients, in particular, were recurrent sources of anxiety across all sites. As part of the graphic interviews, participants were invited to annotate plans of their clinic spaces, and to use red-marker pens to indicate risky areas, where the chances of cross-infection were highest. As Fig. 2 shows, the areas in red identify spaces where multiple CF patients might wait together, or anywhere where there is significant 'traffic' or congestion of people gathering in the ward.

Staff at Site 1 try to minimise CF patients waiting in common areas, by using a text messaging system to alert their patients when to come directly to a specific room in their out-patient ward, but as Emma continued to note Sometimes there does not seem to be any staff around, and so... they occasionally will be sat there or there [in a public waiting area with chairs], but should not do. They should come in and go straight into a room. (Site 1)

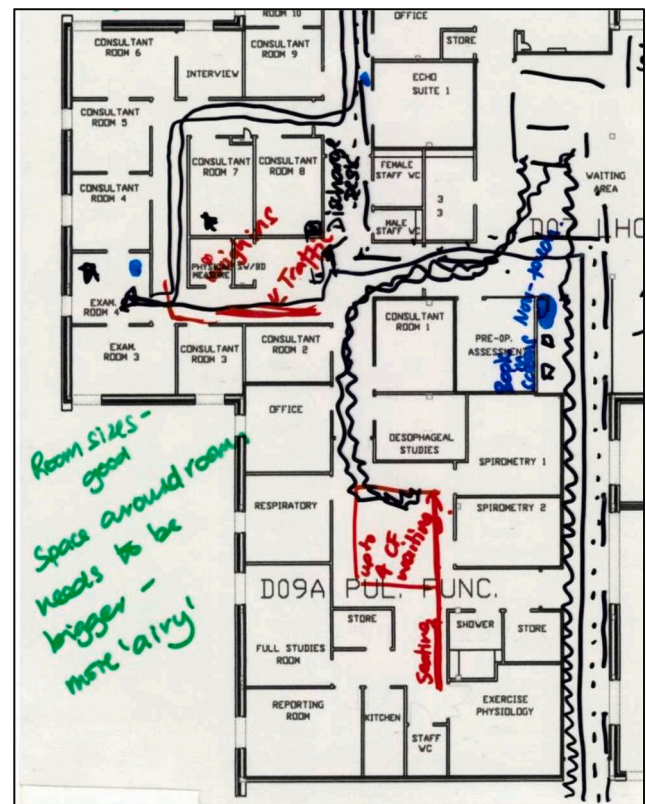


Fig. 2. The areas of risky 'traffic', marked in red, in the CF clinic.

Here, in addition to the ongoing work of anticipation (Emma also notes that staff 'go regularly keep going out' to check on waiting patients), we find 'infrastructures of attention' at play, 'which help staff members to 'keep focused' and to perform sterility work in a limited amount of time' (Mesman, 2009: 1712). This careful form of attention is infrastructural in character, we suggest, because of the many different categories of hospital staff with managing infection control in the CF clinic as an object-target, as we note below.

Moreover, non-hospital staff are also enrolled in the creation of ward atmospheres. As part of our research, we spoke with architects with experience in CF clinic design who noted the tensions of planning spaces

according to strict operational needs and the aspiration to make clinical spaces comfortable (Martin, 2021). This tension was also articulated by estates managers we spoke to:

one of the interesting things for me, the patients were saying some of us own our own business, some of us are at university, some of us are at college, just because we come into hospital our lives do not stop, so we need to continue with that... Now they've got this environment where they've got one side of the room as effectively the clinical side of the room, where you've got the bed, you've got the medical gases, you've got all the power supplies, you've got everything so that that area effectively functions as the clinical space. But then off that you've got the, a nonclinical space as I call it, which is where you've got your desk, you've got your connectivity so you can plug your laptop in, you can see it on the screen, you've got your wardrobe, you've got everything there that's like sort of a hotel side, but the finishes in there are an enhanced finish. But it was finding the balance between an enhanced finish that looked like a hotel, but still, still complied with the infection control requirements. (Vernon, Estates Manager, Site 3)

Vernon's reflection illustrates how the materialities of a space can evoke particular atmospheres of care (Martin et al., 2019). Within the same room, Vernon describes a simultaneously clinical *and* comfortable space, with comfort intended through the 'enhanced finish that looked like a hotel'. Comfort here is an imaginary, or 'highly complex sensibility' (Bissell, 2008: 1697), prompted by the positioning of physical objects (the desk, the wardrobe, a screen) within an otherwise clinical environment, where these objects have been chosen to connote a particular aesthetic – that of the contemporary hotel. Moreover, this description of a comfortable space by Vernon is articulated by imagining a generic patient's body at the centre (Buse et al., 2017; Nettleton et al., 2018), and folding in their emotional and embodied needs within this rendering of a geography of comfort (McNally et al., 2021). Here we see the tensions within contemporary healthcare spaces that seek to balance clinical needs and commercial or domestic atmospheres (Bromley, 2012; Martin et al., 2015), as well as a very present equation of the materialities that are intended to provide patient comfort and enable clinical care (Buse et al., 2018).

And yet, materiality is also a matter of practical and quotidian knowledge, as Helen, a cleaner at Vernon's hospital, noted: 'We do need materials to be washable, not wipeable. It's a hospital, it's not a hotel. And that sometimes, as much as we want it to be lovely and everybody to be comfortable, there is that safety aspect that if we can not clean it correctly then there's an issue.' (Site 3). The work of cleaners was crucial in assembling the ward atmospheres in our own clinics (see also Sumartojo et al., 2020), and we found the same professional pride that is articulated by clinical staff in maintaining circuits of hygiene (Fox, 1997) is also articulated by cleaning staff:

Helen: We've worked really, really hard in this trust over many years as a hygiene service. When we first got our, what we call the new build, which is now about 12 years old, we had lots of meetings, we gave all our ideas, all our experience, all our knowledge, and then when they opened we saw all the issues, and then within so many months they were repainting walls, doing different things.

Ella: Changing things.

Helen: So we've worked hard with the execs and with the project leads to come back to it being, looking like a hotel, but with the furnishings being able to be cleaned correctly. (Site 3)

The cleaning staff's identification of the importance of materiality in fostering circuits of hygiene was shared in discussion with estate managers:

Oliver: It's materials.

Andy: The finishes, the correct finishes really, to minimize bacteria build-up and transmission.

Oliver: It's putting the right flooring in, it's having the right walls, the right worktops, the right... You know, we go with, the sluices are all stainless steel now, are not we, because we had the pot ones, and, you know, which used to be all toilets and you used to flush them, but they're not...

Andy: It's designed to ease cleaning, because at the end of day, time is very precious and costs a lot of money, and it's the correct design, you know, to minimize your on-costs going forward. (Site 1)

In addition to the question of materiality, and its significance to the hospital environment, these estate managers also identified the importance of how people moved around the CF clinic, where they described the security set-up of the ward:

Andy: There is a security strategy which is applied to all wards. So you have to swipe in and out, and there is no cross-traversing between the wards.

Oliver: One time you could have gone through that set of doors there from that ward to there, or that door from that ward to that ward. You can not do that now. One access and egress through that set of doors to lift bay.

Andy: Yeah, so what we're trying to do is minimise, again...

Oliver: Cross-contamination.

Andy: Cross-contamination between the wards. (Site 1)

The conversation here links questions of mobilities with issues of risk management, and the management of hygiene within the ward. This conversation voices a strategic objective that resonates with the work of, as we have seen, cleaners, consultants and nurses at different sites. That is, all of these groups set the safety of the ward as an object-target (Anderson, 2014), and one that is collaboratively achieved. Of course, as has been seen in previous research (Fox, 1997), such intentions rarely translate into predictable outcomes, not least because the accomplishment of patient safety is premised on the bodily capacities and practices of patients themselves.

4.2. Bodily capacity

For Duff, atmospheres 'foreground the body in space, even as their analysis confirms how bodies are assembled and reassembled with other bodies, human and nonhuman, in their varied atmospheric encounters' (2016: 63). This emphasis on the embodied experience of space connects with Anderson's second definition of affective life as embedded within bodily capacities, and the question of understanding affects (and architectural capacities) in terms of what they enable bodies to do. 'Atmospheres', Anderson writes, 'are endlessly being formed and reformed through encounters as they are attuned to and become part of life' (2014: 145). Within the CF clinic, these interrelated questions of architectural atmospheres, bodily capacities, and affective encounters can be traced in questions of movement, and how these conform to the object target of patient safety, or do not. At site 1, an interview with two CF nurses offered an opportunity for them to compare good and bad experiences of patient safety. They reflected that

Una: Some patients are very good, and they know.

Interviewer: They know.

Una: They need to go straight into a room. But I think some of the younger ones maybe would just wait for somebody to tell them, and so they would probably more be at risk of sitting there. (Site 1)

Their observations were endorsed by Neil, a patient at their hospital,

who identified his pathway through the building, which ended with the room in which he had been trained to arrive at:

I feel very safe in the room, yeah. Because the doors are shut, so yes, I do feel absolutely safe in the room. I feel safe walking through the hospital. You know, be fair to say that. I mean I would not put it as a blue zone [calm zone within the hospital], because at the end of the day it is a corridor with multiple people in, however I do not also feel in danger, more like a free zone. (Site 1)

Later in the interview Neil continued to confirm the local practice of patients remaining in the same room for their appointment, with different clinicians coming to him (in other situations, and in other sites, patients typically move around the hospital, visiting specialists). The relative immobility of patients in Site 1 is a deliberate tactic to limit opportunities for cross-infection; as Karl noted, 'I do not move... You know, I enter and leave, that's it, everyone else comes to see me. Which is again a really good idea and a good point they've interpreted into it'. This slowing down of bodies within the CF clinic enacts a body that is being kept safe and which acquires a kind of agency through its relative inaction. That is, through being kept relatively immobile, patients can gain a sense of control over their environment and, indeed, can act as collaborators in their own safety within that hospital place (Duff, 2016). Often, this sense of agency was illustrated by patients adjusting the ventilation within closed rooms to increase air exchanges.

I mean quite often I'll arrive in that IV room on there and the first thing I do is open the window. It just feels stagnant, stagnant, and there's, there's oft... It just often feels a bit dirty in there, you know... This place does not smell like a hospital. (Amy Site 2)

This ritual of opening windows was repeated in interviews across sites (Brown et al., 2020), and is a mundane, though important, illustration of what Duff terms the 'assemblage of forces as bodies gradually acquire novel capacities to affect, and be affected by the bodies (human and nonhuman) they encounter' (2016: 66). In understanding affect as a bodily capacity, we need to think about how the impact of ward atmospheres may have different affects, which are not always those that are intended. At Site 2, Laura spoke about her vigilance, by comparison to the lack of care shown by others in how they moved around the hospital:

Laura: But there are occasions when some patients just decide that they want to go to the kitchen, or downstairs, and they just walk off!... And they do not look. Whereas I always look, and if there's another patient there I will go back in till they've passed.

Interviewer: Any thoughts why they do that?

Laura: I think they just feel like... They probably feel like they're prisoners. You know, even though the ward try to make it as homely as possible, and they do, there is not much else they could do.... I think they feel like they're prisoners, and they're not going to be a prisoner, and if they want to go to the kitchen they'll go, if they want to go for a walk down the corridor they will. (Site 2)

Behind the censure of the behaviour of others, which was a feature of CF patients in previous research (Lowton and Gabe, 2006), there is also sympathy in Laura's acknowledgement of the frustration felt by patients who are not compliant with safety protocols in the clinic. Laura's words here signal the tensions inherent in the spatial cultures of patient safety. She states three times within a short space of time the idea that CF patients can feel like 'prisoners' in the environments of their care, and the use of this word is telling. This feeling of imprisonment tells us about the lived experience of clinical spaces that have been designed (formally, but mostly informally, through staff procedures) to minimise the risk of cross-infection and maximise the feeling of safety for patients. These tensions illustrate that the experience of security will often be related to the experience of anxiety for many patients; indeed, this relationship between security and anxiety allows to understand the dialectical

dynamics of patient safety, especially within the context of CF care.

Frustration was common amongst clinical staff too, such as Rachel from site 1, and her exasperation at the frequency of patients bypassing the text-messaging system designed to expedite their movement through the hospital, and instead try to check in at the front reception area: 'Well despite the fact that kind of we know who's coming, we've already texted them and we know who's going to be coming, and the desks do not particularly sign them in or anything, they still [go to reception]'. The exasperation comes in this case from patients exposing themselves to unnecessary risk; as Fig. 3 illustrates, the front reception area of this hospital is considered to be a risk, primarily because of its pharmacy, but also because of the seating areas and occasional charity stalls selling goods to raise money.

Of course, risks appear routinely in the course of any given day, despite the best efforts of clinical staff to stagger the appointment times of patients in the carefully choreographed 'sequencing' of the clinic (Brown et al., 2021a).

Una: But [patients] generally should go in through from the car parks out here, so they would go in from the main entrance into paed's here.

So we do not see the paediatrics, but there's an entrance into paediatrics down from this corridor here, into the department, and not so long ago this door was not working, so they were navigating everyone through this way.... So [CF Nurse 1] witnessed one of our patients...

Emma: With NTM [nontuberculous mycobacterial lung disease].

Una: With NTM down a corridor, and a paediatric...

Emma: While paediatric was coming.

Una: Was coming. You can not really scream and shout about that, for confidentiality reasons, so it's just navigating them...

I2: How did you manage it?

Una: Professionally out of the way

Emma: [Patient 1], come with me quickly!... Come and stand in this room! (CF Nurse Specialists, Site 1)

The nervous energy still evident in this conversation demonstrates the affective afterlife of certain encounters; as Brennan suggests, affective conditions are always in the midst of encounters, emerging in the mediation of social situations and interactions (2004). The affective afterlife of encounters was also evident in Amy's tearful recollection of an upsetting incident when, because of a lift being out of service, she had to walk a different way to her CF clinic appointment; unbeknown to her, she walked through an unmarked area which she should not have been in, and was berated by cleaners in the space. This experience unnerved her and affected her relationship to the hospital space afterwards.

Amy: I think the only thing I would say is because I'm quite new to walking through this ward, I am a little bit nervous about...

Int: Right.

Amy: Being accosted, based on...

CB: Yeah, yeah.

Amy: Past experience, but so far it's been absolutely fine... And you know, it is helpful when somebody from the CF ward comes up and does accompany me through, and then I've just got a bit of confidence that nobody's going to...

Honestly, I know I got upset, upset earlier, but on this occasion that I mentioned it was awful, they were really... It was like a gaggle of cleaners surrounded me, you know, it was awful. It was a time when



Fig. 3. The pharmacy as potential risk (Source: Chapman).

the ward was closed for cleaning, but nobody, nobody had reported to me, you know, that I could not go through. (Site 2)

Amy's experience is a vivid example of what can happen in terms of affective atmospheres when communication between different people breaks down. It leads us to the final of our findings sections, where affect is understood as a collective condition.

4.3. Collective condition

The capacities of individual bodies to affect and to be affected 'are always collective in the sense that they are forged in and through the encounters that make up the realm of everyday life.' (Anderson, 2014: 102). Behind Anderson's third sense of affect as collective condition lies a sense of the shared understandings and negotiated practices that craft the atmospheres of everyday life. It has been argued that 'atmospheres are modes of conviviality and social resonance, regardless whether they are orchestrated or emergent' (Bille et al., 2015: 37). This resonates with calls that we, as researchers, must become attuned to the 'oblique events and background noises that might be barely sensed and yet are compelling' (Stewart, 2011: 445) – for such are the background bases for the atmospheres of care that we witnessed in the CF clinics we studied. In our ethnographic research, we paid attention to the small details of smell, noise, and the tactility of furniture and physical objects (Brown et al., 2021c), as these were essential to atmospheres of the clinics and, indeed, the practices of care within them (Sumartojo et al., 2020).

One of our participants spoke of the comfort she gained from her usual pathway to appointments in her clinic, and her passing by four dispensers of hand gel:

Rachel: I'm sure down that corridor you've got a squirt there, and definitely a squirt there, and then probably like one halfway down.

Int: Right.

Rachel: So you've got four that you can try, even if one's empty.

Int: Yeah. And you would use that?

Rachel: Yeah.

Int: Right, just as a matter of routine.

Rachel: Yeah, and also I like the smell of it. (Site 1)

Leaving to one side the impact of smell on architectural atmospheres (Martin et al., 2019), what is notable here is the planning of the space to incorporate this circuit of hygiene (Fox, 1997), and this accomplishment of a secure environment, or 'care-ful' geography (Milligan and Wiles, 2010) in which space is configured with the primary goal of accomplishing patient safety (Mesman, 2012). Sometimes this configuration of the space is 'barely sensed' (Stewart, 2011: 445), and sometimes it is less than this, such as the silent technological infrastructure that enables clinical staff to alert colleagues in other parts of the hospital (such as the pharmacy) to the arrival of a CF patient, whose pathway through the building should be as protected as possible:

The computer system at the hospital is quite an old system, but we put alerts on patients if they've got particular infections. The cystic patients have got alerts on them... the staff know to click on that and to isolate them when they come in. So we get around it [risk] a bit like that (Yasmine, Infection Prevention Nurse, Site 1)

What we observe here is the 'infrastructures of attention' that knit together the collective work of patient safety in hospital settings (Mesman, 2009: 1712). Above, we read about the experience of Amy, when she was accosted by hospital staff who did not know about her condition; in the same interview, she spoke about a very different experience of care in the same hospital:

I've not been on the actual CF ward for years and years, but I remember what it was like and it was a completely different experience being an inpatient. I felt very safe and very looked after, and I did not feel like I had to constantly check up on what, what, what drugs I was being given, or like having to buzz for my IVs in case I'd been forgotten... the ward that we were on there had a really, really good understanding of CF, and the staff on that ward seemed to just get it. (Site 2)

Amy here explicitly notes the importance of a collective accomplishment of staff working with a heightened awareness of the patient, with care achieved in an implicit and orchestrated manner (Martin, 2016). Elsewhere she identifies the specific importance of the environment, in addition to the team where she notes that 'I think it is a bit about the building. It's as much about the building as it is the team

really'. The clinic she visits was well liked by patients because of its wide corridors, small scale, and ease of access to outside space; Amy continues to note that

The design of it's fairly good... it's a relatively modern building, it's on the flat, it's very close to where you park the car... You do not have all this worry and anxiety about finding somewhere to park before you actually get into the building and get to do what you're here for. There's an X-ray attached to the outpatients as well, which means if you need an X-ray you can just go on the same day, call through and then your results are there. And they know you, you know, everybody knows the CF patients here because we've been here for years. The people in different departments seem to know who we are and stuff. (Site 2)

Nested within this quote is an attention to the materiality of the environment (ranging from very mundane spaces – such as the car park – to spaces of medical technologies – the X-Ray department); an appreciation of the ease of movement through the site, and the background familiarity of the staff group, offering that 'feeling of stability' that makes the ward atmosphere a familiar place of care rather than anxiety (Sumartojo et al., 2020: 37). This notion of stability and familiarity was noted by Amy as a particular feature of CF care:

The thing is, is with CF, I suppose there's such close monitoring of the condition, and such regular clinic appointments... if you've got ongoing issues, you know, you're seeing the team very, very frequently, you know, maybe, maybe between 10 and 20 times a year, perhaps more than that if you have a lot of IVs, and so you get to know people, and become, they become almost like family or friends I suppose in a way, you start to... Because you do not just talk about CF all the time when you come to clinic... appointments, you start to learn about people's kids, what they're doing at university, if they're getting married and having kids and all that sort of thing. (Site 2)

From another site, Aled noted the comfort of 'one of the CF nurses that's on the ward and she will be our liaison, she will come and see us, and just have a chat. They will come and have a drink, coffee with you and stuff. So, they are always making sure' (Site 3). Both Aled's and Amy's accounts of stability in their treatment teams bring us back to the importance of comfort in brokering an affective atmosphere of care (Martin, 2021), with comfort arising from the 'micro-work of interaction' between clinical staff, carers, and other patients (Riessman, 2015: 1060). Overall, across sites, we see the significance of atmospheres of sociality, a quality of both spaces and practices of recovery in the assemblage of health noted by Duff, for whom sociality may be 'regarded both as an indicator of recovery, and as a practical means of its achievement' (Duff, 2016: 67).

5. Conclusion

In this paper, we have analysed CF clinics as examples of 'care-ful' geographies (Milligan and Wiles, 2010), where the spatial layouts, materialities, and movements of people and objects are crafted to minimise risk and encourage practices of patient safety. Indeed, in our research we found that 'safety is a kind of spatiality' (Mesman, 2012: 40), practised in everyday ways by patients and hospital staff with very different clinical and ancillary roles, and planned in strategic ways by estates staff and non-hospital staff. What connects the work of all these people in their different roles is that they are practising 'a form of care by way of anticipation' (Sumartojo et al., 2020: 28), where their use of CF clinics is informed by their knowledge of the potentially lethal implications to patients of cross-infection, and where they use this knowledge to identify risks in the hospital environment – for themselves but also others. This anticipatory approach to care relies on imaginaries of risk and their contrasting imaginaries of safety; these imaginaries we noticed in the routine work of many people 'tinkering' with their environments

through small and very ordinary acts (Mol et al., 2010), such as opening windows, positioning hand-gel dispensers, or texting patients with details of safe waiting areas. This approach is notable because of the ways in which the anticipatory practices of CF nurses, physiotherapists, cleaners, estates staff and, indeed, patients do not merely mitigate risk in hospital settings, but they actively *make* these environments less risky through their routine orchestrations of care (Brown et al., 2021a).

Within the busyness of the general hospital, we found that CF clinics demonstrated heightened architectural atmospheres, in large part because of the vigilance of staff and patients alike to keep the environment as safe as possible (Fox, 1997). Because of these heightened architectural atmospheres, we drew on the writing of Ben Anderson in particular to help understand the different ways in which affect works in CF clinics to configure the clinic as a particular assemblage of health orientated to the protection of its patients (Duff, 2016). The affective atmospheres of any particular space or building can be conventionally thought to be hazy and imprecise (Böhme, 1993), but we have applied Anderson's definitions of affect working, simultaneously, as object-targets, bodily capacities, and collective conditions in order to analyse, with a degree of precision, how environments, and their atmospheres, are shaped by those who plan, adapt, inhabit, and move through them. Anderson's theoretical framework helps us to identify the dynamics and everyday practices, of anticipation and care, that combine as a constellation to configure the CF clinic as safe for its users. Also, Anderson's framework allows us to empirically understand the tensions that are involved when patient safety practices involve the limiting of connection between people, what care looks like when it is premised on physical distance between people (Buse et al., 2020), and the use of the built environment to broker a sense of comfort within these social dynamics (Martin, 2021).

Kraftl and Adey (2008) argue that affects are 'always on the move and are only ever provisional' (221); similarly, atmospheres might best be thought of as the 'unpredictable, ongoing result of how people are using, moving through, maintaining, refurbishing, adorning and interpreting architectural spaces' (Kraftl, 2010: 408). As illustrated in the recent COVID-19 pandemic, practices of care are similarly provisional and unpredictable; indeed, the unpredictability felt by patients within pandemic adapted hospitals makes manifest, on a wider scale, the routine and enduring experience of CF patients within healthcare spaces (Brown et al., 2021a). Traditional methods, it has been argued, struggle to deal adequately with fleeting situations, emotional experiences, and sensory understandings of place (Law and Urry, 2004). What this means, in practice, is that researchers must engage with different methods to explore such mutable social phenomena as affects, atmospheres, and the changing practices of care that we observe today. Although not the focus of this particular paper, our research does make use of a variety of methods, incorporating visual methods such as graphic interviews (Bagnoli, 2009), mobile methods such as walking interviews (Clark and Emmel, 2010), and artistic methods such as sketch reportage (Brown et al., 2021b), in order to supplement and extend the insights offered through traditional social science methods. Our experience on this project convinces us that 'care-ful' geographies require careful modes of observation, in order to do justice to our accounts of the geographical specificity of places designed for care (Martin and Roe, 2022).

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Supplementary materials

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