Notes from conversation with
Ed Russell, Chief Executive Office, WCS, 16 June 2021

Summary

Ed Russell is the chief executive of WCS, a care home charity with a network of 13 care homes based in Warwickshire, UK. Ed's background as a farmer and as a care worker have inspired his passion for light and health.

WCS has an outstanding reputation for excellence and innovation in patient care, receiving top ranking by the Care Quality Commission for a number of years. Most recently, they have installed circadian lighting in several of their homes, with remarkable results:

- From 'ill-being' to 'well-being' on the Bradford measure for dementia -down from 25% to 0% in just 8 weeks
- Improved Covid resilience for residents isolating through the winter
- Reduced pain medication and sedation
- Complete disappearance of 'sundowning' where people with dementia become agitated and often need sedation. Patients - and staff - can finally relax
- A resident who have been rejected from other homes because of disruptive behaviour settled and happy after 6 weeks
- Residents so enthusiastic that they are driving new business to the charity

All this for an additional cost of around 1% of a new build project budget of £7 million- or the value of one bedroom for one year.

Background

Ed started his career as a care worker and, although he now has a senior management role, he has never forgotten what it's like to be a front line carer.

A lot of regulation can quash people's inventiveness and innovation and the will to just break the norm and do something different because of what I describe as a tick box culture and the very top down approach. If anything goes wrong, it goes down the chain and the carer gets blamed.

It's not like that at WCS. We've focused our energy on creating a really good culture for our carers to have the confidence to do things in their own way. To focus on not necessarily worrying about getting it right, but to do the right thing.

Ed grew up on a farm and still spends his spare time in the fields, driving a tractor and helping with the lambing. And that informed his approach to the lighting.

As as a boy on the farm I used to raise Poultry for the Christmas meal table. I used to raise about 200 chickens and I noticed that, just before they got fat, they would all turn on each other and get quite aggressive.

We put a red light bulb in to the shed and I was fascinated at the impact that had on on the poultry - they all calmed down and stopped attacking each other. So right from a young boy, I've had an interest in how light affects us biologically.

When I joined the charity, I was chatting to one of the trustees about my transition from being outdoors with lots of light to struggling working inside all the time: I missed the daylight and the sunlight. She suffered from SAD, or Seasonal Affective Disorder and had been involved in a study that used light box to treat the symptoms.

I borrowed her light box and shoved it under the TV. I watched for a few hours a day for a couple of days. And I felt energized, just like getting off a plane in a sunny destination. I found I fancied healthier foods rather than the stodge you might be attracted to in the winter.

And that happened really, really fast. She said to me that she didn't use a light box at all any more because she'd changed the way she lived. She made sure she had a house with big windows. She'd go for a walk early in the morning and really made sure she got the right quality of life. And I've done the same myself.

Access to daylight

In that context, it's sobering to hear that the average care home resident spends just three minutes per month outside. But it's not surprising when you think of the tick box culture I mentioned. People can be at risk of falling, risk of escaping into danger, tripping up in your garden….

So all care home doors, generally, are locked. And when I go and visit, I'd often try the door handles and, and it's like a jail - you have to go to get the keys to let people out. So it doesn't happen.

And many loving sons and daughters packed their parents up with with no coat or outdoor shoes. No-one is expecting them to go outside at all. That can be then a reason why you wouldn't go outside. And of course there is the weather - it may be too cold, too wet, too windy, too hot.… Then as a care worker, you get into trouble for someone getting sunburn or somebody getting cold or tripping over or having a fall.

And a lot of care homes in England are two or more stories high because of land prices. Then it's even harder to get to get outside: you've got to get into a lift to come downstairs, to find a key to unlock the door. And there are associated pressures on the carers and staffing levels.

So there are so many barriers to helping people have access to outside.

Now we're targeting the recommended 90 minutes outside per week outside - about 15, 20 minutes of daylight a day. And we're not there yet, but we've achieved 69 minutes a week for about 60% of

our residents. That's simply by having outdoor spaces that are designed beautifully to encourage people outside.

We have people now wearing out their shoes, which is unheard of. That impacts on physical health. You need less bowel medication because you're not constipated because you're moving around. Much, much better quality of life.

There's no such thing as bad weather, just bad clothing!

Lighting design for the new build

Imagine what it would feel like going out for just three minutes per month - being kept in the dark for that long. It wouldn't feel healthy. That's perhaps easier now for people: through lockdown, most of use have spent even less time outside, than we otherwise would.

The building is going to be around for 50 or 60 years - that's an awfully long time. So you have a fantastic opportunity to think ahead about what you may do differently. Gadgets may only be around for a very short time, but the lighting and the building design is going to be there over the lifetime of that building.

So it felt like a really big decision.

We're told by the design experts that for older people, we need very bright light to stop them falling and tripping. So we specify bright, bright light in corridors and in their rooms.

But when you're at home, in the evenings, do you have the brightest lights when you're relaxing? You gravitate towards a more natural light - like candle light or a sunset light. We gravitate naturally towards that. But we don't do that in care homes. We put in very, very bright light. And living with dementia often leads to sleep difficulties and your body clock can get out of sync.

So being exposed to a very bright light later in the evenings can delay the onset of sleep. And if you look up the side effects of sleep deprivation and those of living with dementia, you see another huge overlap. There is also a really big overlap with some of the side effects of living with Seasonal Affective Disorder and dementia. So by the design of our buildings, we could be exacerbating people's conditions or making them worse by not helping people outside - or by not having enough windows or good enough lighting.

So many things come together to making it really, really hard for the people we're caring for. And we're hopefully trying to improve their quality of life.

The power of sleep

We'd been introduced to the power of sleep through some other technology called Acoustic Monitoring that we introduced into our care homes before we looked at the lighting.

It's a non-intrusive technology that listens to sleeping residents. If there's no sound coming from somebody's room that you need to be concerned about, they're left to sleep in peace.

Normally we wake people by checking on them every hour or more frequently to make sure they're okay. We installed it for 75 people. When we switched on the technology, 15 people were awake at night. After 12 months, that was down to three people being awake at night.

Consequently, here was a reduction in falls at night to 34%. With real benefits: people were eating and drinking better the next day. And they aren't suffering from that sleep hangover. So the impact and side effects of living with dementia were somewhat reduced. And ultimately people had a much better quality of life.

The impact is the same with lighting. Because ultimately it helps people sleep at night.

Trial

We had an opportunity to retrofit the circadian lighting into one of our existing homes before we needed to make the final decision. We were working with Coventry University supporting nine PhDs looking at the impact of innovation and technology on health and wellbeing. They helped study the impact of the lighting that we retrofitted to half the ground floor of an older home.

The study began in November- ideal because of the short days. And the best way I could describe it is when you see the lighting coming through the crack in the door or through someone's room, it looks and feels like the sun is shining through the doorway or the window.

Residents who lived in the older part with the original lighting would gravitate towards the Circadian lighting in the day. You could appreciate why someone would be drawn to that sort of light in a dark murky winter. And then at night people were drawn to the warmer candle like effect rather than the bright institutional headache-type light that they were used to.

The university found that it shifted people's sleep patterns from between one and two hours. So they would go to bed a bit earlier and wake up a bit earlier. So rather than being awake at night they shifted to being awake more in the day. So the quality of sleep was better.

Results

We used a well-known dementia mapping tool that that Bradford university oversee. It looks at 24 different behaviours and measures mood on a scale from 'ill-being' to 'well-being'. We measured just before the lighting went in and then we measured at the four - and eight week interval.

Before we switched the lighting one quarter of the residents were in a state of ill-being. And after eight weeks, it was zero. No one was in a state of ill-being. We also saw incremental effects during that time.

Ill-being to well-being

The effects were dramatic. 100% - or everyone - was in a state of content or very content. And there were a few still in the neutral mood. The carers just said, wow, this works. This is big.

Sundowning

People living with dementia can also have a syndrome called sundowning syndrome where agitation increases during the afternoon and evening.

And what this means in reality is somebody's living with that syndrome could get very frustrated. They feel like they need to be somewhere else. That could come out as aggression if that's stopped from getting outside or there. Trying to get through doors and they can't because they're locked. They feel real impetus to get somewhere.

So that as you imagine, being constantly stopped or cajoled by somebody - being the carer in our case. They may do it very lovingly. But the frustration would build and that's where somebody could become aggressive towards a carer. So we had residents who were trying to get out every afternoon and be really frustrated that they couldn't run into the road.
You could set your clocks by it. And carers would dread that that sundowner moment.

And that stopped. It disappeared entirely after eight weeks.

And during that time, we'd find gradually people's their mood could change, but they would engage in activities with a carer: music, relax, do normal hobbies they've enjoyed rather than being in a very agitated state.

So the qualitative impact of the lighting was immense.
And of course, The loving relatives of the residents noticed this change too.

Staff impact

The university also did some studies on the staff who were exposed to the lighting to see what impact that would have.

You can imagine the impact on the carer when you've got a human being in front of you, who's distressed beyond what's right and proper, and you can't console them. You absolutely can't. And this happens day in, day out. And what's your alternative? drugs that can leave someone very wobbly on their feet or sitting in a chair feeling very zoned out because they may be on powerful medication because of the distress that they're in.

The carers were much, much happier. But they couldn't tell whether that was because their job suddenly got a lot better or whether it was the lighting. But either way, the lighting was the catalyst to make that change. So our carers could do more of the job they signed up to do. And it was much, much less stressful and tiring.

So for carers to see a different, a different way, just by switching on the light was amazing.

We're back to the Christmas chickens - you were able to transform aggression and anxiety using colour spectrum and brightness.

Covid resilience

The manager of the original care home where we installed the pilot has reported that the impact on people isolating who had access to the circadian lighting was far, far less than the impact on people who were isolating with just normal lighting through the winter months.

That's simply because they recovered much quicker, were more alert, had didn't have disrupted sleep. So it had a huge impact for those who were stuck indoors.

Pain relief medication

We did find impacts on people taking less medication and people coming off their antidepressant medication.

We were visited by a leading scientist to discuss our work with lighting. She could see that our results were far better than you would expect to see in the general population. But she also considered how people living with dementia can be hypersensitive to environmental factors like temperature noise, and the general atmosphere. They will be more sensitive to body language, tone of voice, colours and clothes. This could mean that a better environment overall has a strong effect on the client group that we're looking after.

But there is currently very little research that we know of that supports that.

Impact on families

The lighting also made a difference to the families of people who had failed placements in care homes, partly because if some of the behaviours I've described earlier. Imagine living with sundowning syndrome, despair and agitation. Everyone around them becomes cross and agitated and frustrated too.

Because of the needs of the many, the individuals with that behaviour need to be medicated or to move out. So we've had one resident quite recently who failed in two of the care homes. Their family were at their wits. The resident came in, and within six weeks the symptoms were gone.

And suddenly they're able to live with others in harmony.

This relative has been a great advocate and goes telling as many people as they can to come and come and live in this care home.

So our choice to invest and to put it in is now repaying with sales being driven to our doorstep by the customers themselves. Not because of the tech, but the impact that the lighting has on lives.

The business case

The evidence that we were gathering on the impact to people's lives was huge. So armed with those stories, I could make my case to our board. You can imagine that that was a no brainer.

We've already talked about the impact on the sleep, the impact of eating and drinking properly, the impact on your mood. The impact of quality of life is huge. And with my CEO hat on I can sell quality of life all day long. So there's a sound, sound business case to do this.

Our latest home cost about seven and a half million pounds and the extra cost of putting in specialist lightings is less about 1% or just less than 1%, of the overall cost.

My shout-out to our board was, do you think so over the lifetime of a building that's going to last 60 years, do you think I can sell one room for one year only? And they said 'Yes! what you waiting for? Get on with it!

The case was so compelling. So once I've got the green light, it was just battling contractors and builders and everybody else who wanted to compromise along the way and not install circadian lighting. But I'm happy to say we did and the results are phenomenal.

Looking ahead - what's next

We have circadian lighting in three of our sites. Totally in the new build, a partial retrofit in another site. And a couple of new rooms in another site. And of course we wouldn't put any new rooms without lighting.

So what's stopping you from putting it across the rest of your estate…?

Making a meal of it!

When you're innovating or trying something new, you've got to go to a lighting contractor and they'll make a right meal of it. 'You've got to rewire this. You've got to do that, you can't do that, you don't want to do it like that, you want to do it like this. And suddenly what seems on the face of it a very simple thing to do becomes very expensive and difficult.

But there are opportunities. The government's just announced the phasing out of the energy saving light bulbs we all put in a few years ago, to LED lighting. And of course, there'll be a very good reason for that because they use much less power. So there will be an economic case to replace that older lighting with LED lighting. Why not make it circadian LED lighting?

So I want to use my existing light fittings or locations in the care homes so I don't have to rewire anything and just replace those existing lights with circadian lights. Something which should be a relatively straightforward switch across suddenly turns into a whole convoluted conversation and a new set of boxes to tick.

It’s a lot of effort because we'd be one of the first and with all the other things that are on your plate it’s not easy. However, we've got such a compelling reason to do it because of the impact on people's lives.

We are a charity, so we can really reinvest in our own care homes. And we know that customers love it. And we repaid for that investment very quickly. So it'd be really, really open to looking with innovative lighting providers.

In our latest care home, we fitted a retail off the shelf solution in that you just hit the switch and it knew what time of day that lighting should be on. We didn't put any special wiring in which of course made it a lot cheaper. So we're piloting, experimenting. I can see us going through our whole estate and getting a return on investment because we're using much cheaper lighting.

Lessons for others - and an invitation

I'd say build it and they will come and they are.
Sales wise, we've got some lovely, lovely buildings. But people are now choosing to come with us for reasons, other than nice carpets or decoration. It’s because of the technology and the impact on life. We've got more and more customers telling us story for us as as well.

Whether you're for profit or not for profit, people are motivated by making a difference and impacting on their fellow human beings.

Come and visit. See it in action. Speak to the carers and the managers. Come and speak to the relatives. Help us get more research.

Sort it out, change your culture, inspire people and get going and have fun.

It's been an absolute ball.