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- The benefits of working collaboratively with a charity partner
- How mobile cancer care units can improve the wellbeing of both staff and patients
- Why the approach has the potential to help NHS trusts meet their net-zero targets

How patients benefit from mobile cancer treatment

Key points

Using mobile cancer care units allowed us to deliver a service that was focused on the patients' needs

This approach also created an opportunity for the nursing team to develop new ways of working

The initiative has improved training, as well as staff retention and recruitment

Patients found that the convenience of the 'hospital coming to them' made their treatment easier to tolerate

Working with a charity meant that many of the practical aspects of keeping a van for cancer care were taken care of

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Abstract Cancer treatments have, traditionally, meant patients had to regularly travel to hospital for treatment, which can be a significant distance. The NHS is focused on developing services closer to home, based on patient choice and involving shared decision making. At Airedale NHS Foundation Trust, the principle of care closer to home has been applied in the delivery of cancer services: in collaboration with the charity Hope for Tomorrow, the trust has started to use mobile cancer care units. These units allow patients to have their treatment delivered near to their home by specialist secondary care cancer teams and reduces the need for travel to the hospital. Airedale General Hospital is a rural district general hospital and covers a large geographical area, so the units have a positive impact on the patient experience.

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With the number of people waiting for more than three months for a cancer diagnosis and treatment at an all-time high, NHS England and all trusts are looking at trying to expand diagnostic and treatment centres. At the start of 2023, more than 12,000 patients in England (over 4% of the 287,000 people diagnosed with cancer) had waited more than 104 days to receive treatment after diagnosis (Hall, 2023). With that demand comes capacity and staffing issues for all hospitals. Delays in patients' treatment can reduce their chance of cancer survival by 10% (Hall, 2023).

Improved survival rates and new drug technology – namely, systemic anti-cancer therapy (SACT) delivery – are placing pressure on traditional cancer units. Advice from the Department of Health in 2009 was to treat patients closer to home where conveniently possible (Department of Health, 2009). The emphasis was on timely, efficient, effective, equitable,

patient-centred and safe care. To achieve this, we needed to look at new ways and models of working and investment to improve the patient experience and deliver a safe and high-quality SACT service.

How could we deliver safe, convenient care?

Traditionally, chemotherapy has been delivered in hospital, requiring patients to travel there regularly, often spending a full day travelling and receiving treatment. After these long journeys, there are also other issues to contend with when they arrive, such as car parking charges, finding a space close to the door, having to walk through the hospital, and then sitting and waiting for treatment. To avoid parking issues, patients tend to request hospital transport, which is an additional cost to the trust. If urgent triages are being treated, this can cause delays to when patients are seen. These are just some of the issues that patients with cancer regularly had to deal with during a difficult time in their lives.

Fig 1. Mobile cancer care unit 'Linda' and nurse support vehicle



At Airedale, the plan to deliver treatment closer to patients' homes started 12 years ago with a pilot based at a local cottage hospital. This was only for a small cohort of patients in one of the areas that Airedale serves. While it was successful, it was not sustainable due to variable patient numbers, and it did not benefit the other catchment areas around Airedale. With a rural and urban population of 200,000 covering 700 square miles, we had to explore how we could potentially reach all of them – we needed to look at other options.

In 2015, while again investigating any new innovations to deliver treatment in the community, we came across Hope for Tomorrow. This is a cancer charity dedicated to improving the lives of patients with cancer, but in a novel way – it builds and provides mobile cancer care units (MCCUs) (Fig 1).

What is an MCCU?

The unit is a large, purpose-built vehicle for treating patients with cancer. It is 11m long and 2.5m wide, which allows it to be comprehensively equipped. It has seating capacity for four treatment chairs, a medical-grade air conditioning system, a nurse's desk, medical fridge, wheelchair access lift, integrated toilet facilities, a dual-SIM router for wifi access and separate kitchen facilities with a cooler for refreshments – everything you need to provide appropriate care.

Airedale units also have a Paxman scalp cooler, which means that, on the MCCU,

“Traditionally, chemotherapy has been delivered in hospital, requiring patients to travel there regularly, often spending a full day travelling and receiving treatment”

we can carry out almost all treatments that we conduct at the day unit. Another important feature is the lighting. One would think a mobile unit would be dark and unwelcoming inside but it is quite the opposite, with modern LED lighting and windows, making the patient experience much more pleasant (Fig 2).

How does the partnership work?

In 2018, Airedale NHS Foundation Trust and Hope for Tomorrow became partners, and Airedale took possession of its first MCCU – known as 'Linda' – along with a nurse support vehicle. This was the 11th MCCU in England funded by Hope for Tomorrow, and it would make a major difference to how the trust delivered its care.

The fundamental benefit of an MCCU is that it can be driven to any location in the trust's catchment area to deliver safe and local patient care. For Airedale, we carefully chose all sites to improve the experience of the patient and that of their friends and family. These were either in supermarket settings, with cafe facilities, or small outlet shopping malls and garden centres.

The charity also complements the units with nurse support vehicles in which

nurses and the drivers can travel. They are also used to bring along all necessary medication from the hospital to treat patients on the day. The trust is responsible for, and employs, the driver and the nursing staff. The combination of the unit and the team allows us to provide patients with treatment under the supervision of specialist secondary care cancer teams in a convenient location close to where they live.

The MCCUs cost around £300,000 to build and are fully paid for by the charity, which then provides them to the trusts to treat patients. They have an expected 10-year lifespan. The charity works closely with Airedale and other trusts to keep the MCCUs on the road, so the trusts can focus on delivering care. Aside from the initial funding, the support provided by the charity is broad ranging. The average annual servicing costs for an MCCU vary depending on the type of unit and comprise:

- The units being driven back to the coachbuilder for one week once a year to receive a full service and inspection;
- Quarterly inspections to check that specialist equipment – including the generator, air conditioning, patient lift and other key features – are performing correctly and to address any other defects that may arise. These take place on site at the trust;
- Drivers taking the units for 12-weekly services to dedicated commercial vehicle specialists close to their location to ensure the mechanics are sound.

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Fig 2. Inside the ‘Christine’ mobile cancer care unit



“The fundamental benefit of an MCCU is that it can be driven to any location in the trust’s catchment area to deliver safe, local patient care”

This is all organised and paid for by the charity, which quotes the daily cost of keeping a unit on the road, once it is operational, at £212.

With the charity taking care of the operational costs and logistics, the trust is able to focus on delivering local cancer care. The charity needs to make sure its funders are aware of the outcomes of its work, so the relationship does not stop with the provision of the units, nurse support cars and their maintenance. Hope for Tomorrow works closely with NHS trusts to build their business cases for using the units at the start of any potential partnership. Once our first unit was up and running, Airedale became part of a network with other trusts, which also had MCCUs.

The charity runs quarterly conference calls allowing all trusts to share best practice and any concerns, to allow for continuous improvement. It also runs a partners’ day once a year, where all trust partners can meet in person to network and discuss cancer treatment provision. Representatives from the charity’s operations team also visit the trusts to discuss progress, developments and potential improvements. Hope for Tomorrow’s team provides telephone support for the NHS drivers and operation teams, and out-of-hours support to make sure trusts have the help they need, so their treatment delivery is fully supported.

The units remain under the charity’s ownership. As they come close to a decade

of use, it raises the funds to replace them with new, upgraded units with another 10-year lifespan. The old units are then sold by the charity as commercial vehicles for alternative use.

With all of the above considered, the benefits of such an approach for patients, the cancer care team and the trust as a whole were clear.

Partnership working

Taking on such a commitment could only occur with close partnership working and a passion from both parties for helping patients with cancer. The trust was focused on delivering the best possible care, and the charity had to ensure the trust was able to deliver this, while also highlighting to its donors and stakeholders that its funding was having an impact on care for patients. Hope for Tomorrow guided the team at Airedale through the process to make sure the trust board at Airedale General Hospital and the board at the charity were fully on board so both partners would be able to adhere to their commitments.

Benefits for patients

The mobile units enable treatment to fit into patients’ lives, rather than patients having to fit their lives around their treatment. The units are parked daily in different areas – all of which are places where patients’ families and friends can go and shop, or have a coffee, while waiting for their loved ones to have their treatment, reducing the impact and stress on them.

Data from the charity, taken from questionnaire responses from 327 patients from 11 NHS trusts between April 2021 and

March 2023, shows that, on average per treatment, patients save:

- 18.8 miles of travel;
- 2.6 hours of time;
- £6.40 on travel and parking.

These figures will differ significantly from patient to patient. Some of Airedale’s patients have a 90-mile round trip to the hospital and, if they are on a weekly treatment regime, this can negatively affect them mentally, physically and financially. These savings from the use of MCCUs show that they play a role in reducing health inequalities – saving patients money and time, which may also mean time off work.

At Airedale, over a three-month period from June until August each year from 2019 to 2022, we looked at what our patients saved in miles and money for their treatment visits to a unit when compared with driving to the hospital. Cost and miles for a full year were calculated based on this period; the results are shown in Table 1.

While the financial and time savings reduce pressure on patients’ finances and, for working patients, the amount of time they or their partners/friends need to take off work, these statistics should not be

Table 1. Patients’ savings by using MCCUs

Year	Miles saved	Money saved (£)
2019	5,492	980.32
2020	7,141	1,274.66
2021	10,404	1,857.14
2022	11,774	2,101.34

MCCU = mobile cancer care unit

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seen in isolation. Other benefits include:

- No waiting – patients are treated promptly on arrival with no delays from triage cases;
- A reduced feeling of vulnerability – patients feel safer as they do not have contact with as many people as they would if they went to hospital;
- Increased independence – shorter and briefer trips to the unit for their treatment mean patients are less dependent on others;
- A sense of community – local patients receive regular treatment together;
- A pleasant experience – patients regularly comment on the friendly and professional service provided by drivers and the nursing team.

These and other benefits combine to show the overall impact that treatment in an MCCU has on patients. Data collected by the charity from 327 patients across England, who completed a feedback questionnaire between April 2021 and March 2023, showed that:

- 70% said that they found it easier to tolerate their treatment on a mobile unit than in hospital;
- 50% said that they were more likely to complete their course of treatment.

Coupled with this, Airedale collected anonymised data from questionnaires between 2019 and 2022; 313 were sent out and 297 were returned. The questions covered practicalities, experience, the impact on family and carers, and how treatment on a unit affected patients' mental health. Feedback showed a positive impact on patients and their family lives, with patients feeling less fatigued through treatment on the unit, which also improved their mental health. Overall, at least 60% of patients were less stressed about attending for treatment. Box 1 features some patient comments taken from questionnaires about the service.

Benefits for nurses and the NHS

Other organisations have delivered treatment in patients' homes through visits from healthcare staff. For some patients, this can be beneficial, but it can also isolate them and does not provide a separate home life and treatment life for patients and their families. Conversely, on the units, patients have support from fellow patients while having their treatment. In addition, nurses feel they get to know the patients much better, often picking up on issues through patients sharing experiences, tips and problems, which helps them to provide patients with improved holistic care.

Box 1. Feedback from patients treated in the MCCUs

"I am less tired when I have my treatment on the mobile unit, and this helps my family."

"I can arrange my day and meet up with friends after I have my treatment, making me feel more normal."

"It is far less stressful as I can drive myself or, on a sunny day, walk to the unit, which means I can still [be] independent, and my husband can still work, which helps financially."

"There are no parking costs, and I can park right outside the mobile unit, making it much less stressful."

"I can do my shopping on the same day as my treatment."

"My treatment takes two-and-a-half hours instead of a full day at the hospital."

"The atmosphere on the mobile is so relaxing and, dare I say, fun?"

MCCU = mobile cancer care unit

The MCCU is run by a band 6 nurse and a band 5 nurse, along with a band 3 driver/healthcare assistant. Staff have a fulfilling relationship with patients and are not just technicians who deliver treatment. The impact of the units on staff has been a positive one, and the variety that stems from working in the hospital and on the units has helped with retention and recruitment.

Established nurses were asked how they felt about working on the units. All 12 members of staff trained to work on the MCCUs felt that, while work there was still very busy, being able to work out of the hospital setting enabled them to get to know the patients more, making their day-to-day experience more rewarding and giving them a break from the multiple demands in the hospital. When recruiting and interviewing, staff commented that they were looking forward to working on the mobile units and this had attracted them to apply.

We also use the unit to help train staff. The band 6 nurse can focus on the trainee nurse, giving full attention to the assessment and clinical skills they need to become fully trained. The trainee has the chance to work through their UK Oncology Nursing Society SACT Competency Passport and ask questions without interruptions. The senior nurse can then, not only give assurance that the trainee is competent, but also see where further training is needed. Over the past four years, as

Airedale has expanded its team, 12 members of staff have been trained in this way.

Our main aims when setting up mobile cancer care were to ensure patients felt as safe as they did in the hospital setting and that staff felt supported and were confident that they could safely deal with any emergencies that might arise. We have achieved this and seen growth in staff confidence. The nursing team on a unit can deliver approximately 25 treatments a day. With more routine treatments delivered efficiently on the units, this frees up capacity at hospital oncology centres to treat more complex cases, which could help to reduce wait times for cancer treatment.

Helping towards net zero

NHS England has two net-zero target ambitions, namely that:

- The emissions it controls directly (the NHS Carbon Footprint) reach net zero by 2040, with an ambition to reach an 80% reduction by 2028 to 2032;
- The emissions it can influence (NHS Carbon Footprint Plus) reach net zero by 2045, with an ambition to reach an 80% reduction by 2036 to 2039 (NHS England, 2022).

As part of Airedale's commitment, its *Green Plan 2022-2025* has several strands, one of which focuses on travel and transport. Figures for this area of the trust's plan, which focuses on patient and staff travel, highlight that this strand alone generates 6,961 tonnes of carbon dioxide (CO₂) per year (Airedale NHS Foundation Trust, 2022). The trust is looking at all aspects of patient and staff travel to change and influence behaviour to reduce these emissions in line with NHS England's objectives. The use of MCCUs has a role to play in reducing CO₂ emissions.

With patients having to travel shorter distances for their treatment, the charity has calculated a reduction in CO₂ emissions from shorter car journeys for patients. It looked at the emissions from Airedale's two MCCUs and nurse support vehicles making return journeys to treat patients in Bingley, Ilkley, Settle, Skipton, Bradford, Keighley and Wharfedale, and the average savings in travel miles for patients who drove, had lifts or took a taxi to the unit instead of travelling the longer distance to hospital. From this data, it calculated that the annual CO₂ savings to the trust for using the units for 2022/23 amounted to 13 tonnes. As the units have a lifespan of 10 years, over their lifetime savings could amount to 130 tonnes, with these being higher or lower, depending on

Table 2. Treatments delivered in MCCUs (April 2019-March 2022)

Period	Treatments (n)
April 2019-March 2020	2,743
April 2020-March 2021	5,222
April 2021-March 2022	7,631

MCCU = mobile cancer care unit

the number of patients treated each day and the distance the MCCUs travel.

Reducing travel miles will also affect other vehicle emissions and contribute to improving air quality. This, along with other measures from the trust – such as procuring 100% renewable energy, and the use of air source heat pumps and solar panels in buildings to decarbonise and improve the air quality – will help reduce the development of cancers, asthma and other diseases. The World Health Organization (nd) estimates that 99% of the world's population breathes air that threatens their health.

Covid-19: delivery and safety

Over the two years of the Covid-19 pandemic, Hope for Tomorrow provided Airedale with an additional MCCU to help protect vulnerable patients and enable them to continue their treatments, which continued to be delivered without delays. In terms of total treatments since April 2019, Airedale and Hope for Tomorrow data demonstrates a large increase (Table 2).

Figures specifically for 2020 show how the use of two MCCUs affected chemotherapy treatment at Airedale General Hospital, with more treatments taking place in the units (Table 3).

During April and May 2020, a trust-level search of the NHS' SACT Covid-19 dashboard shows that, in terms of the number of patients treated compared with the same period of the previous year, Airedale had one of the highest rates of SACT administration across the West Yorkshire

and Harrogate Cancer Alliance. This was due to having two MCCUs, which contributed significantly to the trust's ability to continue to treat a high proportion of patients with cancer.

Patients reported feeling much safer being treated on the mobile units during the pandemic, rather than coming into the hospital setting. Comments from those who received treatment during the Covid-19 pandemic include:

"I was worried I wasn't going to be able to have my treatment because I would be at risk of catching Covid, but coming to the mobile unit has made me feel so much safer."

"I much prefer my treatment on the mobile unit. It's very worrying going into the hospital at this time."

"I am so frightened of going into the hospital and was thinking about stopping my treatment, but I feel really safe on the mobile unit."

"I am so glad I don't have to go into the hospital for my medication; it's such a scary time."

The future

In 2022, Airedale took receipt of a new prototype unit, which was named 'Christine', after Hope for Tomorrow's founder, who died of cancer. Christine is a larger MCCU than Linda with three treatment chairs and two small treatment rooms, which extend hydraulically from the side of the unit. While looking impressive inside and out, the impact Christine has will be even more significant. Our focus with this unit is again to deliver outpatient clinics closer to patients' homes and to set up new clinics and innovative services.

We have introduced clinics over the last year, including for oncology urology and electronic holistic needs assessments, as well as oral clinics, stem-cell information clinics and vague-symptoms clinics. We are now investigating the introduction of clinics that will focus on breast pain, mole assessment and consent, as well as working with cancer colleagues on education and self-examination sessions. We

decided to explore these clinics as West Yorkshire has poor uptake on screening, and there are areas of deprivation in which we could provide education for younger people without the need to travel. This mobile approach is also ideal for reaching the diverse communities we serve, for whom there are cultural and language barriers that can be quite daunting; if clinics can be delivered in the community in small numbers, it may help to break down some of these barriers.

Moles were brought to the attention of the team as an area of potential interest, with people – including staff – often going to the unit to ask if their moles could be examined. Unfortunately, this is not an area in which MCCU staff are trained but, with longer waiting times for GP appointments, providing assistance with this could be an option to consider.

The breast-pain clinics and mole clinics would be conducted in conjunction with breast service staff and the support of the local dermatology service, respectively. These are potential new services and need supporting business cases. With the fallout from Covid-19 and the winter impact on hospitals, these are on hold until it is possible to engage fully with the appropriate services and commissioners.

We struggle to meet increasing demands for cancer care and face financial constraints, but our experience shows that MCCUs are a big step forward. With the charity looking after capital and running costs, it is a solution that can be implemented with minimal issues and minimal financial impact.

Conclusion

The MCCUs have had the biggest impact on improving cancer treatment for patients I have ever seen. The possibilities, looking forward, are exciting. Being mobile means we can form our plans and move around to meet the needs of the community we serve. **NT**

References

- Airedale NHS Foundation Trust (2022) *Green Plan 2022-2025*. ANFT.
- Department of Health (2009) *Transforming Community Services: Ambition, Action, Achievement – Transforming Services for Acute Care Closer to Home*. DH.
- Hall R (2023) Record number of cancer patients in England waiting over three months for treatment. *theguardian.com*, 10 January (accessed 18 December 2023).
- NHS England (2022) *Delivering a 'Net Zero' National Health Service*. NHS England and NHS Improvement.
- World Health Organization (nd) Air pollution. *who.int* (accessed 18 December 2023).

Table 3. Percentage of treatments delivered on MCCUs in 2020

Time period	Mobile units (n)	Treatments taking place in mobile units rather than in hospital (%)
Q1	1	40
Q2	2	68
Q3	2	60

MCCU = mobile cancer care unit