

# Sustainable Healthcare Examples

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A programme of Knowledge into Action

Registered charity No. 1123566. Summertown Pavilion, Middle Way, Oxford OX2 7LG

# NHS England carbon reduction targets

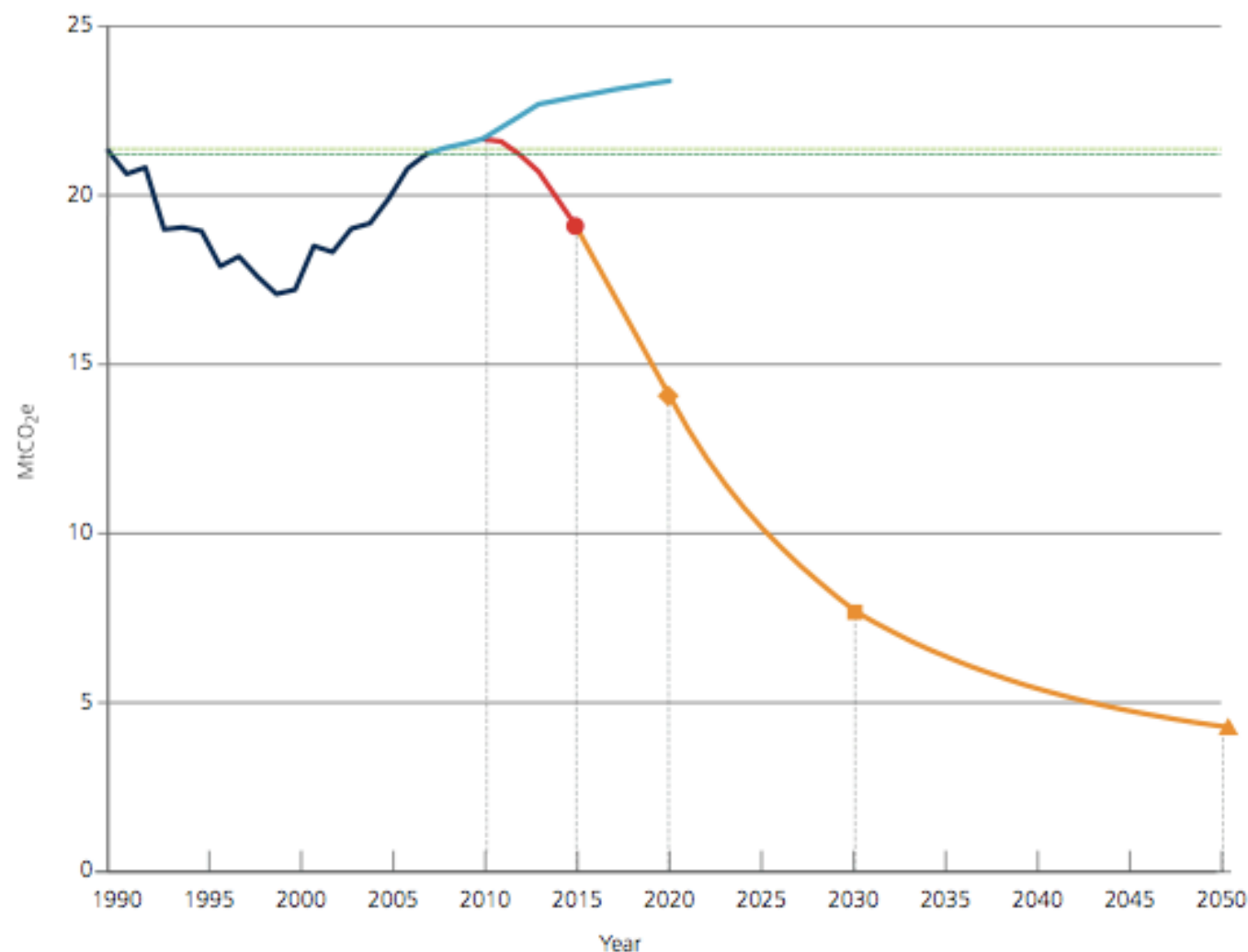


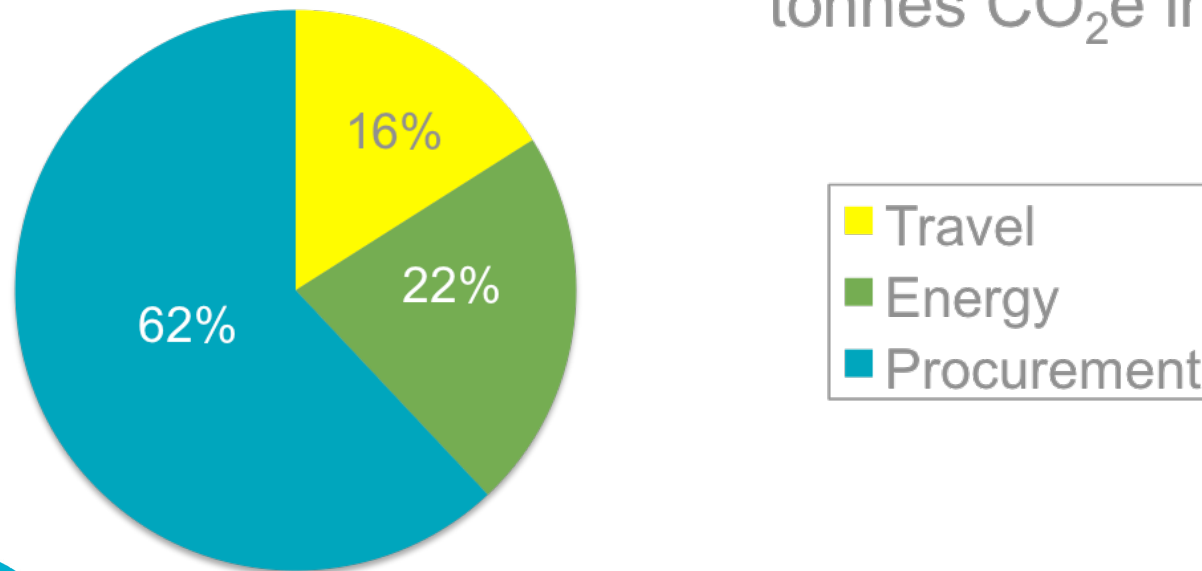
Figure 1: NHS England CO<sub>2</sub>e emissions from 1990 to 2020 with Climate Change Act targets

Key

- NHS England CO<sub>2</sub>e emissions
- NHS England projected emissions
- 2007 baseline
- Carbon Reduction Strategy Target
- 10% target from 2007 baseline
- 1990 baseline
- Climate Change Act Trajectory
- 34% target from 1990 baseline
- 64% target from 1990 baseline
- 80% target from 1990 baseline

# Carbon footprint – NHS England

Total annual emissions 21 million tonnes CO<sub>2</sub>e in 2007



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# Principles of sustainable clinical practice

1. **Prevention** of disease, health promotion
2. Greater **engagement of patients** in managing their own care
3. Lean care systems: **minimising low value activities** (including travel)
4. Preferential use of effective & proven technologies with the **lowest carbon footprint**



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# Green Nephrology Fellowship

“Out of programme year” for  
a renal trainee, sponsored  
by NHS Kidney Care



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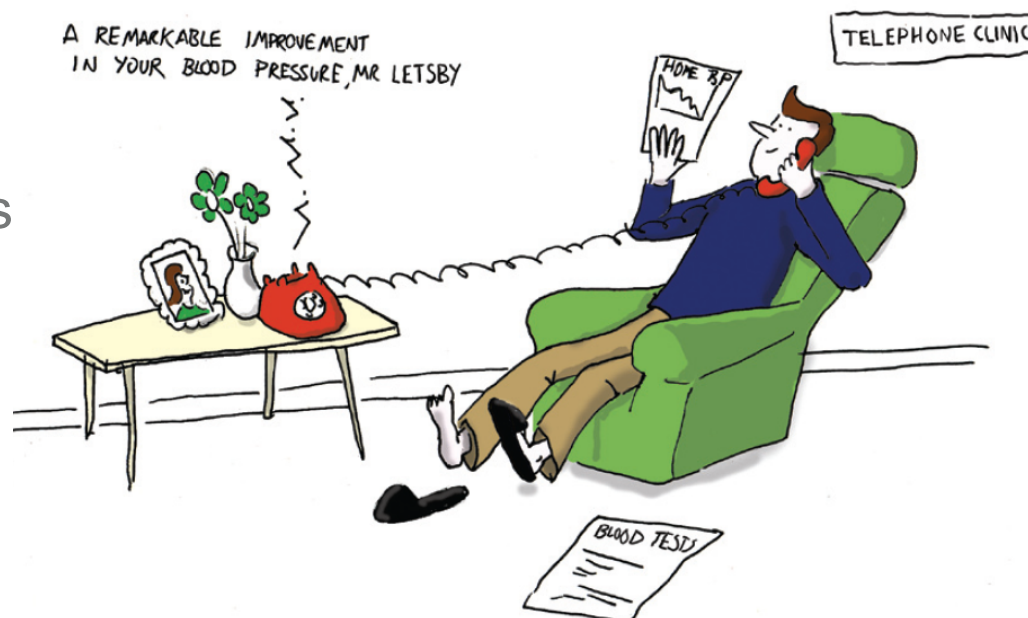


Dr Andy Connor

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# Telephone clinics in follow up of renal transplant recipients

- One-third of stable transplant recipients in Coventry have opted for follow up by quarterly telephone consultation
- No adverse events to date (3.5 years)
- Convenience & patient empowerment
- CO<sub>2</sub> savings per year: 2 tonnes
- Potential for financial savings from staff efficiencies



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# “Sustainable Action Planning”

Renal unit staff used the SAP tools to identify and realise a number of CO2 savings:

- Aborted ambulance bookings reduced by synchronising treatment times: cost saving per year £13,200.
- Food waste reduced from 35% to <5% by establishing a new sandwich menu: cost saving per year £4,000.
- Linen use reduced by 70% through patient collaboration: cost saving per year £4,800.
- Bicarbonate cartridges were changed to reduce packaging and volume: cost saving per year 11,000.



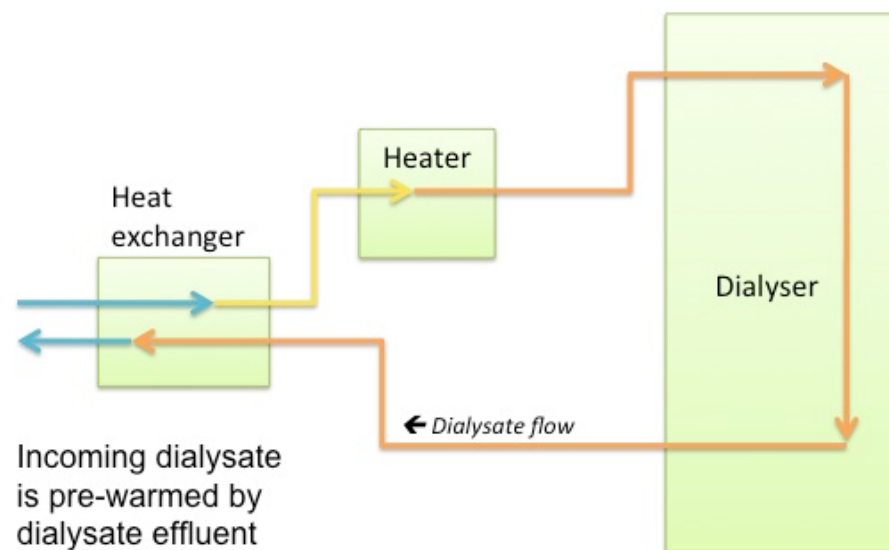
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# Retrofit of heat exchangers to haemodialysis machines

Technicians investigated benefits to energy efficiency from retrofitting heat exchangers to 83 Braun Dialog+ machines across the East Kent renal service:

- Implementation costs: £15,687
- Savings per year: £3,998
- ROI (5 years): 127%
- CO2 savings per year: 22,603kg



# Salvage of reject water in haemodialysis

In Canterbury dialysis unit, reject water from the purification system is salvaged to supply the hospital toilets, saving the Trust £7,500 each year on mains water and sewerage costs. A similar system was designed into a new-build dialysis unit in Ashford at even lower cost.

	Unit					
	Canterbury (retrofit)			Ashford (built in)		
Year	Investment	Savings to date	ROI	Investment	Savings to date	ROI
1	£15,000	7500	50%	£2,500	£10,558	422%
2	0	15000	100%	0	£21,116	844%
5	0	37500	250%	0	£52,790	2112%
10	0	75000	500%	0	£105,580	4223%



# Waste reduction in haemodiafiltration

The unnecessary use of bags of normal saline, together with priming sets and drainage bags, in readiness for emergency infusion during haemodiafiltration has been discontinued on the Dunfermline dialysis unit – saving on both procurement and disposal.

- Implementation costs: £0
- Savings per year: £18,594
- CO2 savings per year: 5,300kg CO2



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# Improved waste segregation

Diversion of non-contaminated items from clinical to domestic waste in the Dunfermline renal unit has reduced the amount of clinical waste by 0.9kg per dialysis treatment -12.4 tonnes per year. Clinical waste must be incinerated, and is charged at around £400 per tonne, compared with £85 for domestic waste.

- Implementation costs: £0
- Savings per year: £4,138
- CO2 savings per year: 6,800kg CO2



# Paper – reduce, reuse, recycle

The Chester renal unit has reduced paper consumption by 75% - almost 50,000 sheets per year. Paper copies of blood results are no longer sent from Pathology, all printers on the unit are defaulted to print double sided and patient care plans have been reduced from 14 to 6 pages. Meanwhile, staff and patients have increased their recycling of paper waste.

- Implementation costs (to date): £0
- Savings per year (to date): £140
- CO2 savings per year: 231kg CO2e.



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# E-consultation as an alternative to hospital referral in CKD

A CKD e-consultation service in the Bradford and Airedale allows GPs to send electronic referrals and share patient electronic health records with a renal specialist, after first obtaining verbal patient consent.

- Convenient and timely advice
- Avoidance of unnecessary referrals
- Further evaluation planned to determine whether the service will displace outpatient clinic activity.



Estimated CO2 savings from avoidance of one outpatient visit: 40kg CO2e.

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Full case studies accessible at:

[www.greenerhealthcare.org/  
nephrology-resources](http://www.greenerhealthcare.org/nephrology-resources)



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# Green Nephrology



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**ARI**

**Association of Renal  
Industries**



**Baxter**



**Kidney Care**