UK Kidney Association

Kidney Quality Improvement Partnership

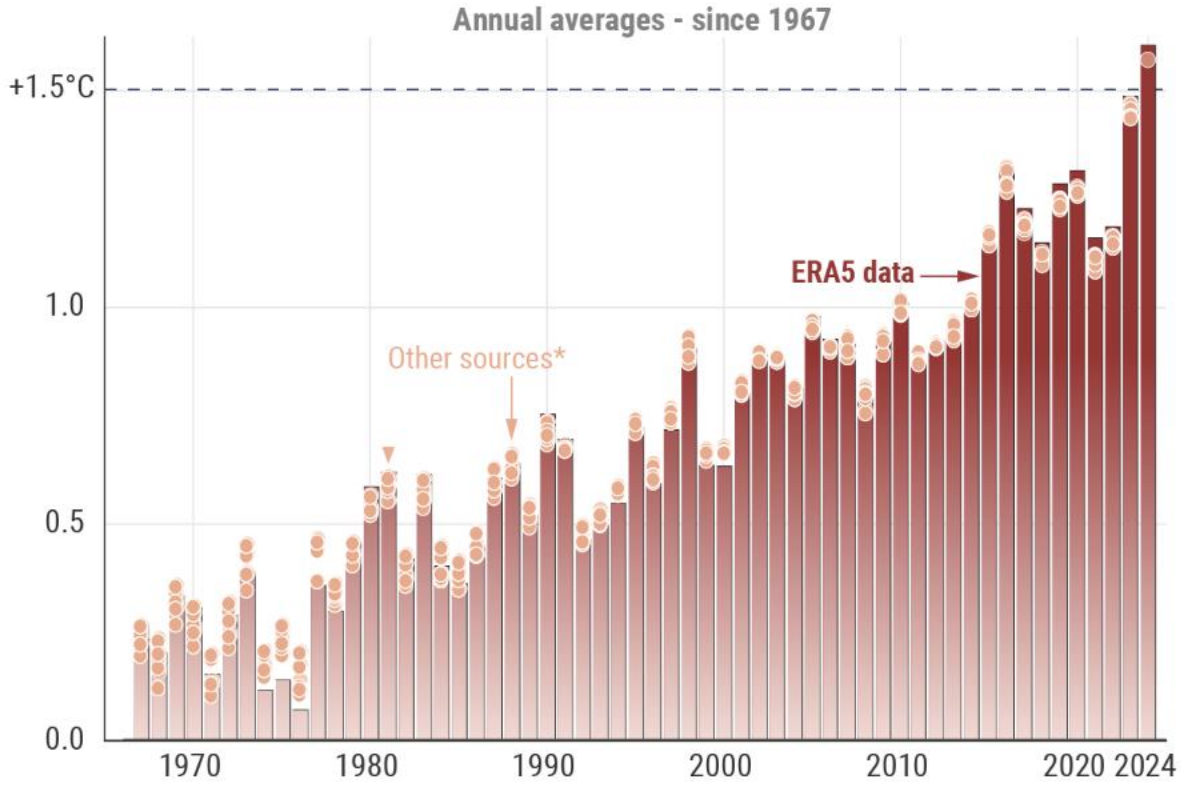
Yorkshire & Humber Kidney Network

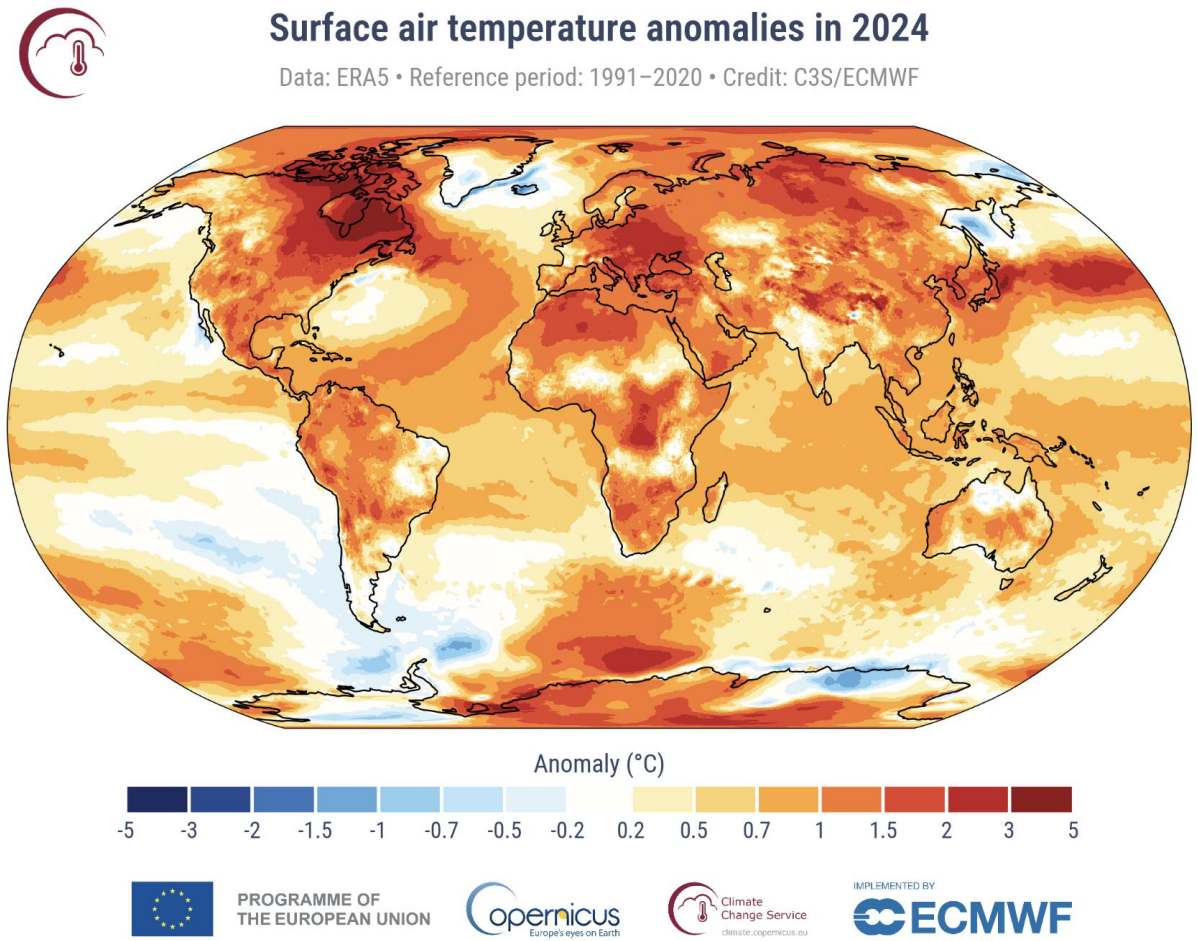


TRUNC-HD

Trying to Reduce UnNecessary Carbon in Haemodialysis celebration event

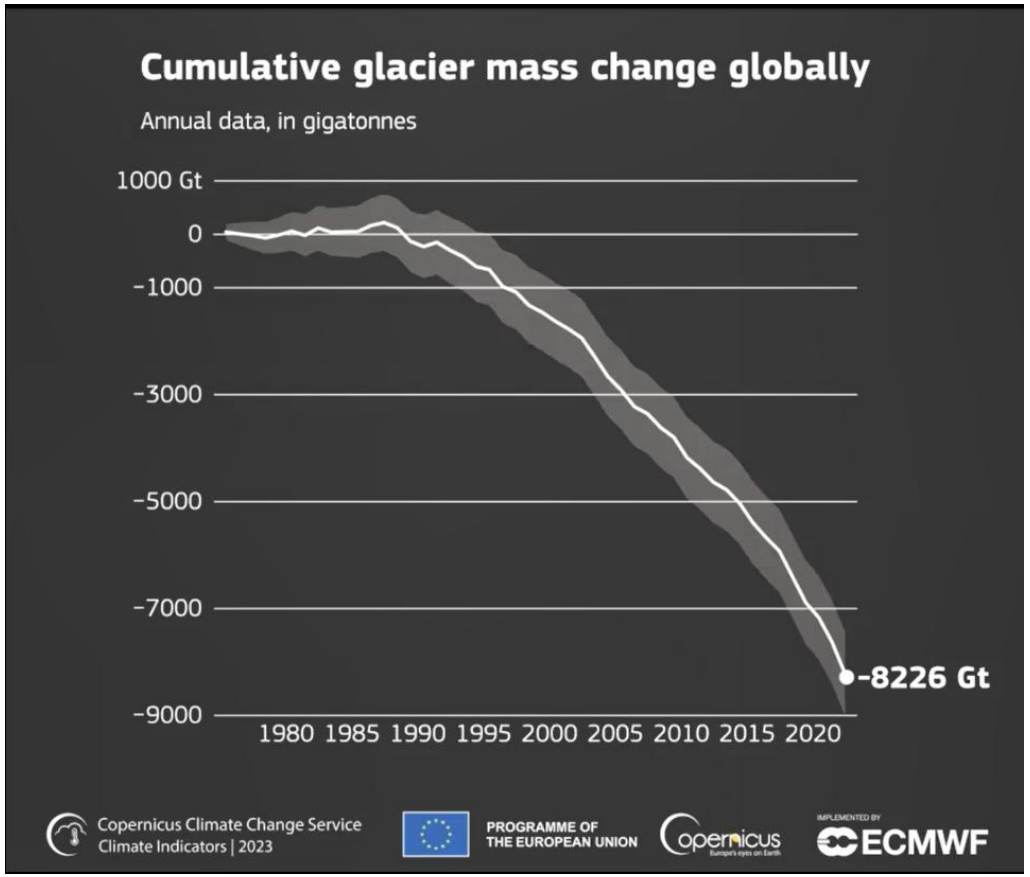
Copernicus: 2024 was the warmest year on record & is the first year to exceed 1.5°C above pre-industrial level





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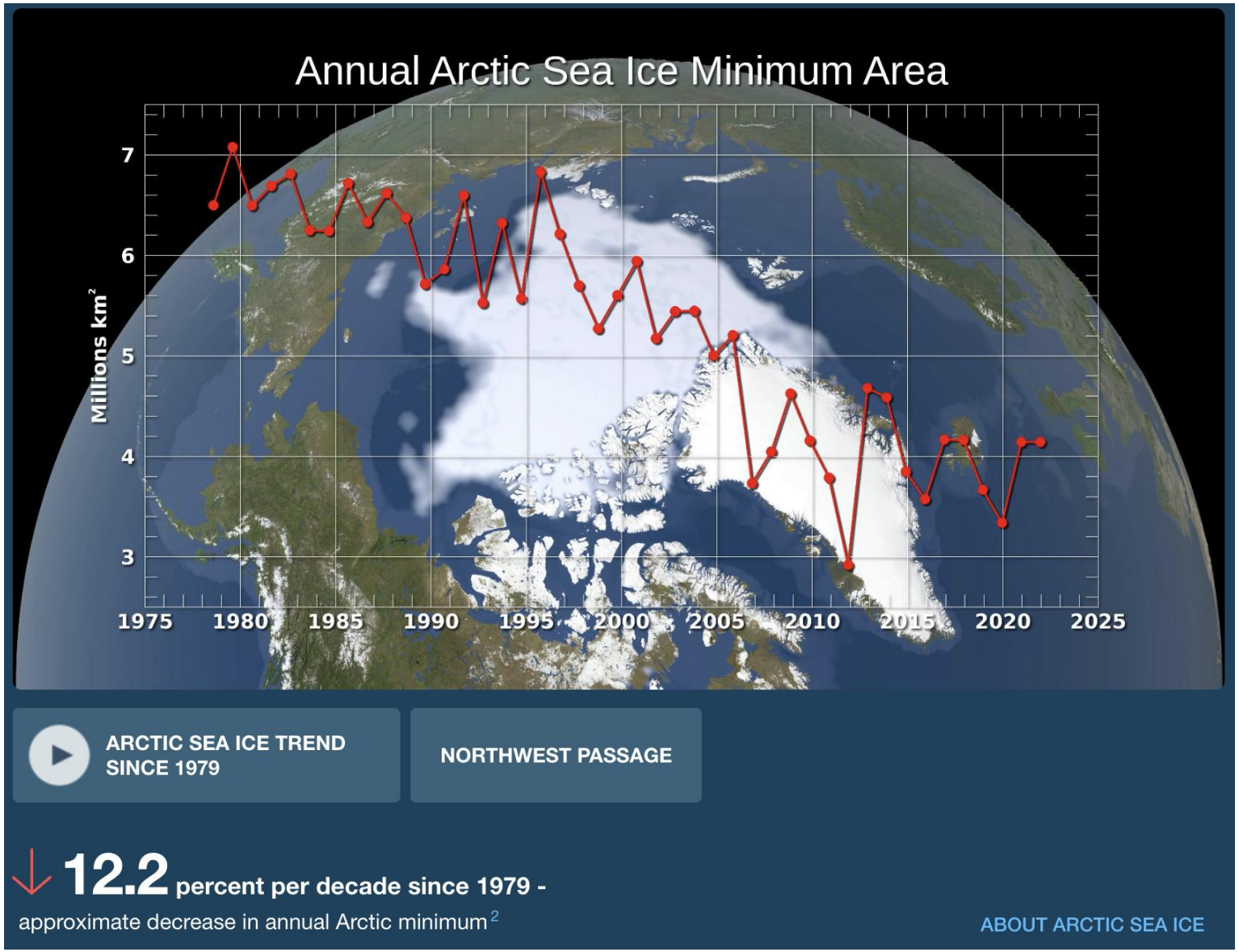
Glaciers are melting



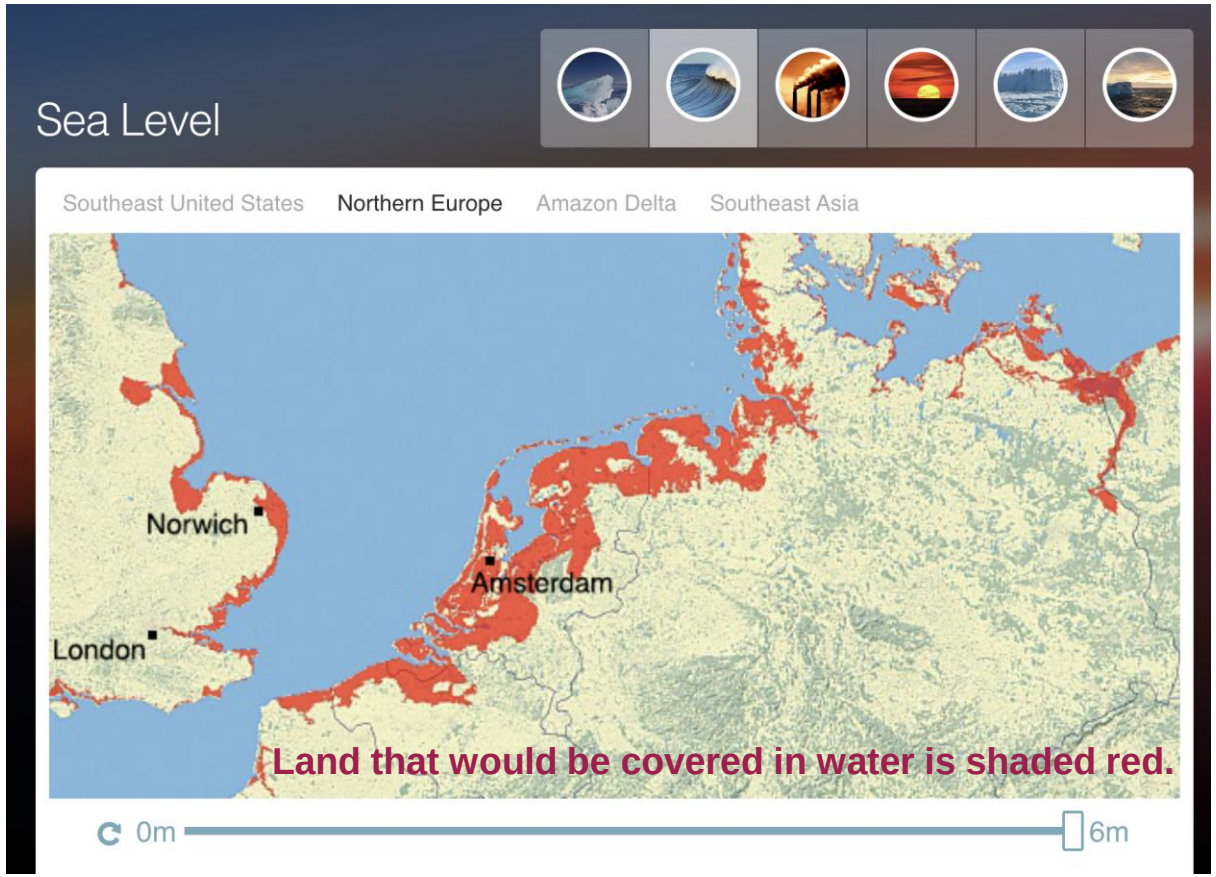
‘It made me cry’: photos taken 15 years apart show melting Swiss glaciers

Married couple from Bristol attract awe and abuse on X with photos that show ‘staggering’ changes in the Alps




Annual Arctic Sea Ice Minimum Area
Millions km²
7
6
5
4
3
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
ARCTIC SEA ICE TREND SINCE 1979
NORTHWEST PASSAGE
12.2 percent per decade since 1979 -
approximate decrease in annual Arctic minimum [2]
ABOUT ARCTIC SEA ICE

Rising sea levels – increased risk of flooding



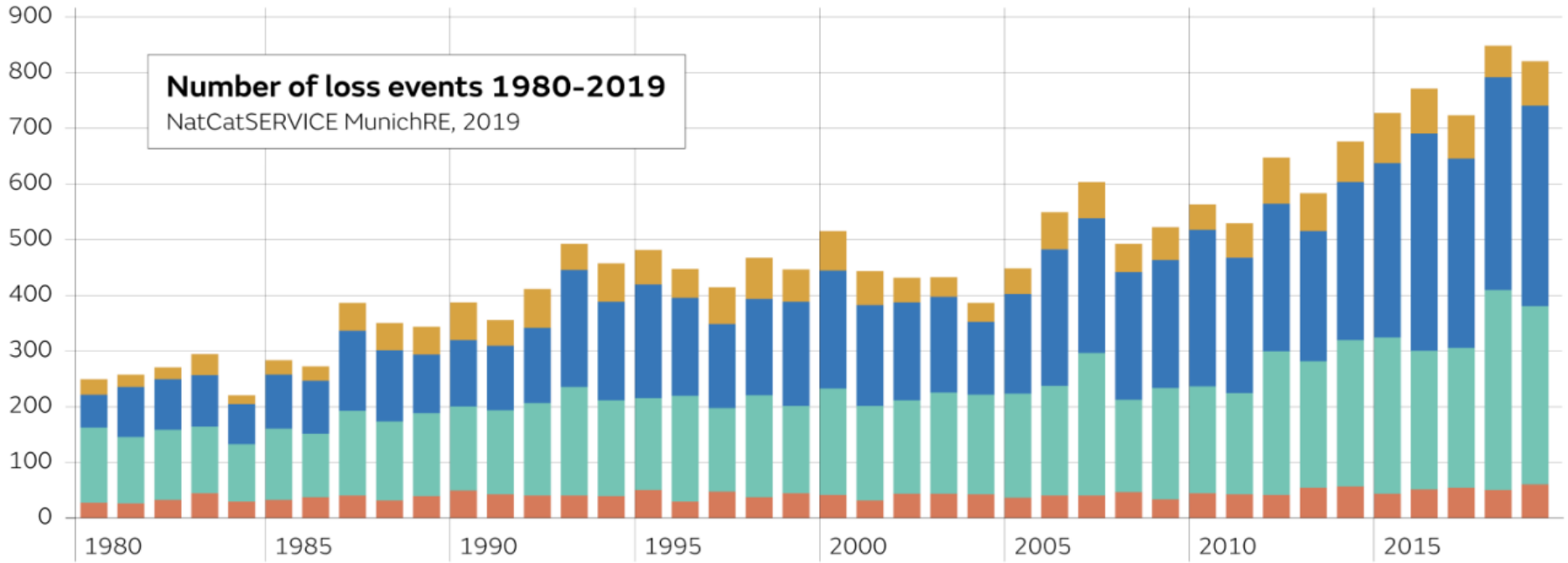
Climate.nasa.gov

6.3 million properties in England are in areas at risk of flooding from rivers, the sea, and surface water.

Predicted rise to around 8 million (one in four) properties in England at risk of flooding by 2050.

- Climate Change Committee 2025 report to Parliament

Met Office Are extremes becoming more frequent?



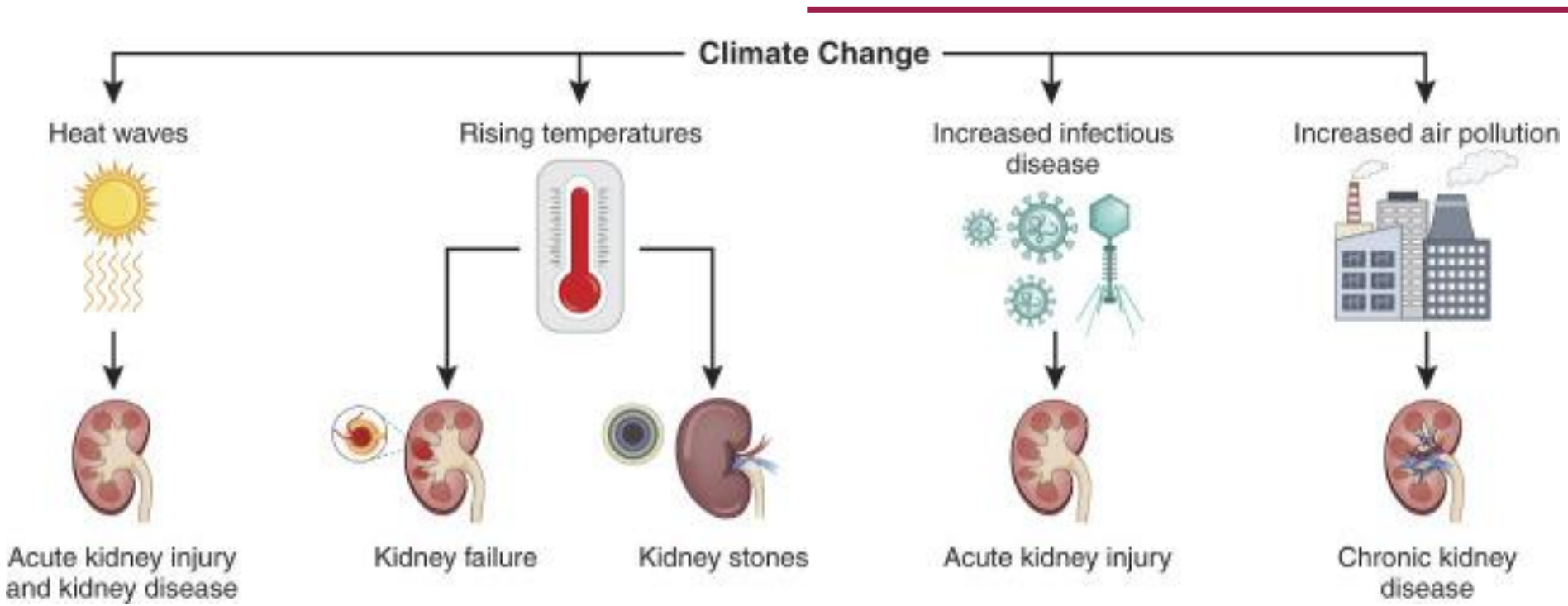
Geophysical events
Earthquakes, tsunami, volcanic activity

Meteorological events
Tropical storm, extratropical storm, convective storm, local storm.

Hydrological events
Flood, mass movement.

Climatological events
Extreme temperature, drought, wildfire.

Climate change and kidney care



Impact on healthcare system and delivery

Rising number of people needing dialysis

Disruption to service delivery

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doi: 10.2215/CJN.08530722

OCTOBER 16, 2024 | 5 MIN READ

Hurricane Helene Damage Strains Dialysis Care Nationwide

Hurricane Helene devastated a North Carolina facility that produces peritoneal dialysis fluid, which is used by about 80,000 people nationally

The Biden administration says it has invoked the wartime powers of the Defense Production Act to speed rebuilding of a major American factory of intravenous fluids that was wrecked by Hurricane Helene last month. Damage to the plant in North Carolina has worsened a nationwide shortage of IV fluids, and hospitals say they are still postponing some surgeries and other procedures as a result.

Some 60% of the nation's IV supplies had relied on production from the plant, run by medical supplier Baxter, before it was damaged by the storm.

Human-induced climate change made the heavy storm downpours and total rainfall across the UK and Ireland between October 2023 and March 2024 more frequent and intense, according to a rapid attribution analysis by an international team of leading climate scientists.

Is climate change affecting hurricanes?

Assessing the precise influence of climate change on individual tropical cyclones is challenging. The storms are relatively localised and short-lived, and can vary significantly in any case.

But rising temperatures do affect these storms in several measurable ways.

Firstly, warmer ocean waters mean storms **can pick up more energy**, leading to higher wind speeds.

Record high sea surface temperatures were a key reason why **US scientists forecast an above-normal Atlantic hurricane season for 2024.**

The high temperatures are mainly due to long-term greenhouse gas emissions.

Secondly, a warmer atmosphere can hold more moisture, leading to more intense rainfall.

Climate change made the extreme rainfall from Hurricane Harvey in 2017 around three times more likely, **according to one estimate**.



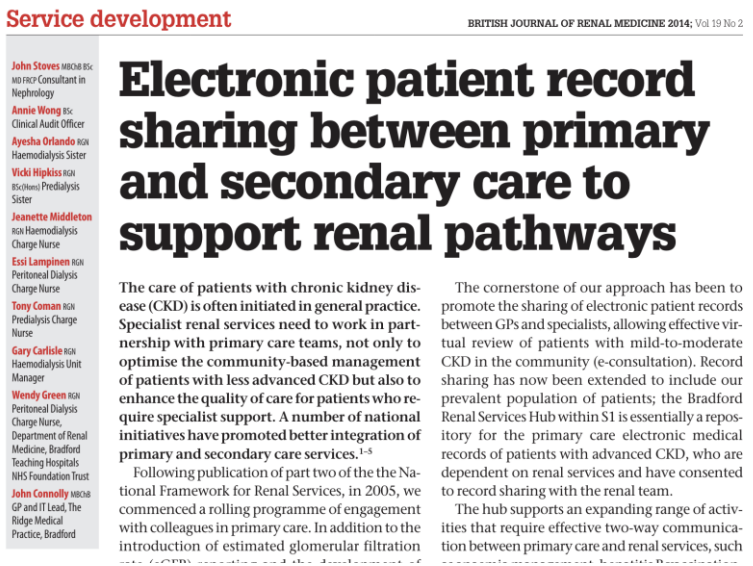
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Bradford

- **Early adopter of green nephrology – Green Nephrology Summit 2010**

- **The CKD Electronic Advisory Service, presented by Dr John Stoves from Bradford, supports a rich online interaction between GPs and hospital kidney doctors, who are able to give advice on the management of individual patients in primary care.** This effectively reshapes the patient pathway, avoiding the need for many referrals, with their attendant travel, inconvenience and duplications.



Service development

BRITISH JOURNAL OF RENAL MEDICINE 2014; Vol 19 No 2

Electronic patient record sharing between primary and secondary care to support renal pathways

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The care of patients with chronic kidney disease (CKD) is often initiated in general practice. Specialist renal services need to work in partnership with primary care teams, not only to optimise the community-based management of patients with less advanced CKD but also to enhance the quality of care for patients who require specialist support. A number of national initiatives have promoted better integration of primary and secondary care services.[1–5]

Following publication of part two of the the National Framework for Renal Services, in 2005, we commenced a rolling programme of engagement with colleagues in primary care. In addition to the introduction of estimated glomerular filtration

The cornerstone of our approach has been to promote the sharing of electronic patient records between GPs and specialists, allowing effective virtual review of patients with mild-to-moderate CKD in the community (e-consultation). Record sharing has now been extended to include our prevalent population of patients; the Bradford Renal Services Hub within S1 is essentially a repository for the primary care electronic medical records of patients with advanced CKD, who are dependent on renal services and have consented to record sharing with the renal team.

The hub supports an expanding range of activities that require effective two-way communication between primary care and renal services, such

Bradford

The unit has been named joint winner of the 2013 Green Nephrology Award with Bristol Royal Hospital for Children.

Both kidney units demonstrated significant environmental savings while treating dialysis patients.

The Bradford renal team won first prize at the Centre for Sustainable Healthcare's annual awards with its initiative to reduce the amount of water, acid concentrate and bicarbonate used in dialysis treatment for patients whose kidneys are failing.



Interventions	Capital outlay costs	Year introduced	Financial savings per year (estimated / actual) and estimated CO_2e savings per year*	Cumulative estimated savings to date
Electronic consultations via: 1) E-consultation and E-referrals via SystmOne® as an alternative to paper hospital referral for advice and referrals 2) NHSAttend Anywhere 3) Virtual Renal Metabolic Stone 4) Young Adult Transition Clinics	None	2007 and 2020	Financial: Unable to quantify financial savings accurately. CO_2e: 22kg saved per outpatient visit avoided	CO_2e: 165.00 tonnes (approximately 7500 appointments over 18 years)
Renal Unit Hub via Systm One ® - Two-way sharing of Electronic Health Records between the renal unit and general practice	None	2010	Unable to accurately quantify financial and CO_2e savings. However, this initiative resulted in reduced face-to-face hospital attendances for blood test monitoring and reduced paper communications to and from primary care teams (thousands of communications per annum)	
Use of online priming on haemodialysis machines (avoiding saline bags)	None	2010	Financial: £92,851 (Estimated) CO_2e: 8.04 tonnes	Financial: £1,392,765 (15 years) CO_2e: 120.6 tonnes (15 years)
Upgrade of water treatment systems in the haemodialysis unit	£60,000	2011	Financial: £18,000 (Actual, 2012) Financial: £24,240 (Estimated, 2024) CO_2e: 8.42 tonnes (2012) CO_2e: 2.71 tonnes (2024)	Financial: £252,000-339,360 (14 years) CO_2e: 37.94-117.88 tonnes (14 years)
Central delivery of acid for haemodialysis	£43,900	2011	Financial: £23,072 (Actual, 2012) Financial: £25,509 (Estimated, 2024) CO_2e: 45.12 tonnes	Financial: £323,008-357,126 (14 years) CO_2e: 586.56 (13 years)
Use of 1:44 haemodialysis acid concentrate solution	None	2011	Financial: £0 (Actual) CO_2e: 2.05 tonnes	Financial: £0 (14 years) CO_2e: 28.7 tonnes (14 years)
Lighting Project - installation of 85 fluorescent 'T5' light fittings to replace the order 'T8' light fittings	£5,000	2012	Financial: £612 (Estimated, 2012) Financial: £765 (Estimated, 2024) CO_2e: 2.30 tonnes (2012) CO_2e: 0.85 tonnes (2024)	Financial: £7,956-9,945 (13 years) CO_2e: 11.05- 29.9 tonnes (13 years)
Use of dialysate Autoflow facility	None	2013	Financial: £11,524 (Estimated) Financial: £17,659 (Estimated, 2024) CO_2e: 3.71 tonnes (2013) CO_2e: 10.49 tonnes (2024)	Financial: £138,288 – 211,903 (12 years) CO_2e: 44.52-125.88 tonnes (12 years)
Incremental and decremental haemodialysis (Average 25 patients per year on twice weekly haemodialysis)	None	2020	Financial: £156,250 CO_2e: 28.21 tonnes	Financial: £781,250 (5 years) CO_2e: 141.05 tonnes (5 years)

UKKA

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>1000 tonnes CO2e saved and estimated £2.8 million