

6 Step Process for Care Pathway Appraisal



1. Define the care pathway to be assessed

This should include the specific patient group and pathway being appraised and the reason for the appraisal.



2. Create a detailed outline of all activities forming the care pathway

In order to fully appraise a patient care pathway, all clinical interactions and activities within the pathway must be mapped. This includes all distinct healthcare-related events performed for, on behalf of, or by a patient.



3. Group activities into modules

To simplify the appraisal process and identification of hotspot areas, linked activities can be grouped together into **care pathway modules**. These modules form the building blocks which make up the total care pathway.

Example modules may include – GP Consultation, Outpatient Appointment, Inpatient Admission, Surgical Procedure etc.



4. Choose an appraisal method

Once the care pathway modules have been mapped, an appraisal of environmental sustainability can be performed in several ways, depending on the data available and objective of the appraisal.

High-level overview of the whole pathway - for carbon hotspot identification at a modular level. Uses basic activity data (e.g. number of outpatient appointments) which are then multiplied by generic module-level carbon emission factors. Will not provide a detailed pathway carbon footprint.

Detailed appraisal for specific module of interest - comprehensive assessment of the carbon footprint for a known carbon hotspot, addressing all activities on an individual basis and calculating the environmental impact of each. Requires detailed data collection and product/activity life-cycle assessment.

Hybrid - combination approach where a carbon footprint is calculated for all modules within the care pathway but to a different level of granularity depending on the requirements of the appraiser.



5. Calculate the carbon footprint

High level appraisal – For a manual calculation, use the [SHC Carbon Factors Table](#) to allocate carbon footprint values to each pathway module. Add multiples of modules together to obtain the estimated carbon footprint for the pathway as a whole. Alternatively use the online [Carbon Calculator Tool](#) (to be updated spring 2024).

Detailed appraisal - requires an in-depth analysis of all corresponding activities, events and products and then subsequent calculation of the associated carbon footprint using published carbon emission factors. Please read the SHC guidance documents for details on how to complete this.



6. Interpret and report the findings – take action

Following calculation of the carbon footprint, you can interpret the results, identify any likely carbon hotspots within the pathway and take definitive action to decarbonise these areas.

Example Pathway Appraisal



1. Define the care pathway to be assessed

Our objective is to undertake a high-level appraisal of the adult elective laparoscopic cholecystectomy pathway i.e. via the outpatient referral route. We will choose 10 patients to obtain a representative sample of our pathway.

The reason for the appraisal is to identify carbon hotspots within the pathway to target for quality improvement initiatives to reduce the overall carbon footprint of the whole pathway.



2. Create a detailed outline of all activities forming the care pathway

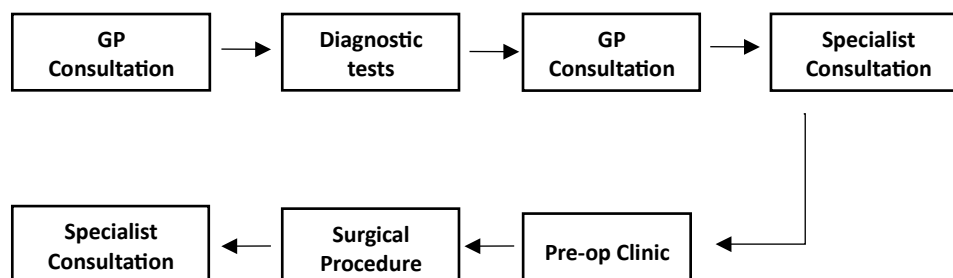
Outpatient elective laparoscopic cholecystectomy pathway

- **Patient presentation to GP with suspected biliary colic** - patient travel, staff travel, consultation + assessment
- **GP refers patient for diagnostic tests** - patient travel, ultrasound scan, blood tests
- **Follow-up appointment with GP** - patient travel, staff travel, consultation + assessment
- **Specialist surgical outpatient clinic** - patient travel, staff travel, consultation + assessment
- **Pre-operative assessment clinic** – patient travel, staff travel, consultation + assessment, basic observations, blood tests
- **Elective admission for day-case laparoscopic cholecystectomy** – patient travel, staff travel, anaesthesia, surgery, post-operative recovery
- **Follow-up specialist surgical outpatient clinic** - patient travel, staff travel, consultation + assessment



3. Group activities into modules

Outpatient elective laparoscopic cholecystectomy pathway





4. Choose an appraisal method

High-level overview of the whole pathway - for carbon hotspot identification at a modular level. Uses basic activity data (e.g. number of outpatient appointments) which are then multiplied by generic module-level carbon emission factors. Will not provide a detailed pathway carbon footprint.



5. Calculate the carbon footprint

Manual calculation performed using the [SHC Carbon Factors Table](#).

Module	Number of episodes in pathway	GHG per unit (kgCO ₂ e)	GHG emissions total (kgCO ₂ e)
GP Consultation	2	1.1	2.2
Diagnostic Imaging	1 - Ultrasound Scan	0.5	0.5
Outpatient Clinics (Used GP Consultation value)	3	1.1	3.3
Surgical Procedure	1 hour – without desflurane	38.4	38.4
Patient Travel	Single trips to GP – 4	0.56	2.24
	Single trips to elective care – 10	2.9	29
Total for Care Pathway			75.64



6. Interpret and report the findings

This high-level carbon footprint calculation identifies two likely carbon hotspots within this patient care pathway – patient travel to elective care and the surgical procedure. These modules should be the areas of focus to target for decarbonisation during pathway re-design. Quality improvement initiatives could include:

- Streamlining patient care to combine pre-operative outpatient appointments to reduce unnecessary travel
- Introducing green theatre processes such as low carbon anaesthesia, switching to reusable equipment and switching off theatre lighting/equipment when not in use.