Care Pathways: Guidance on Appraising Sustainability

Condition Self-Management Module

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TABLE OF CONTENTS

1	CONDITION SELF-MANAGEMENT	2
1.1	DESCRIPTION	2
1.2	BOUNDARY SETTING	4
1.3	UNIT OF ANALYSIS	9
1.4	ACTIVITY DATA	9
1.5	EMISSION FACTORS	10
1.6	MODULE CALCULATION STEPS	11
1.7	EXAMPLE CALCULATIONS	12

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1 CONDITION SELF-MANAGEMENT

This module provides guidance on how to calculate the performance of a representative patient self-managing a condition against the sustainability metrics. It can be used:

- to direct the appraisal of a specific condition self-management regime, through the collection of primary activity data, for a care pathway; or
- as a source of secondary data for condition self-management to inform a screening assessment of a care pathway; or
- as a source of secondary data for an appraisal of a care pathway where condition self-management is known not to be material to the overall care pathway.

1.1 DESCRIPTION

Condition self-management is the wide range of activities in which a patient participates with the aim of controlling the symptoms of a long-term condition and reducing the chances of a condition worsening.

Self-Management

This module covers a wide breadth of activities that focus on supporting the patient's own management of health and specific conditions. Where people are living with a long term condition, interventions can help prevent complications and avoid the need to go to hospital.

Activities that support the prevention of complications and good management of a condition can include the provision of pharmaceuticals, advice, guidance and services to support the patient at home in order to improve health and wellbeing.

Self-management planning is generally GP-initiated, and involves the use of multi-disciplinary teams (MDT) (GPs, practice and community nurses, hospital practitioners, social workers and mental health practitioners). The MDT work together to develop a patient care plan and manage the cases of patients with long-term conditions.

Long-Term Conditions

A long-term condition is a condition that can be managed with the use of medication or other interventions to avoid condition complications and prolong a healthy life. Example conditions include:

- asthma;
- chronic obstructive pulmonary disease (COPD);
- diabetes;

- epilepsy;
- heart disease;
- mental health disorders;
- motor neuron disease;
- multiple sclerosis;
- osteoporosis;
- Parkinson's disease;
- renal failure; and
- rheumatoid arthritis.

Self-Management Activities

In the UK, NHS Choices lists several forms of support available to those with long-term conditions [(1)]:

- healthy lifestyle support, including dietary advice and exercise regimes;
- information on conditions;
- training on how to live with conditions;
- provision of tools and equipment; and
- support networks.

Activities associated with long-term management of conditions are:

- Monitoring, including:
    - self-monitoring;
    - digital monitoring (eg apps);
    - third party; and
    - caregivers.

- Treatment, including:
    - pharmaceuticals and devices consumed or used in a patient home;
    - provision, testing and maintenance of equipment;
    - therapy;
    - hotlines;
    - assessments at hospital; and
    - arranged visits.

- Lifestyle, including:
    - social prescribing (eg exercise);
    - job and housing assistance;
    - empowerment; and
    - reminders, motivation and incentives.

- Awareness, including:
    - training, information and education;
    - advocacy and stigma reduction; and

[(1)] NHS Choices – Your health, your way, http://www.nhs.uk/Planners/Yourhealth/Pages/Yourhealth.aspx

    - trigger identification.

- Networking, including:
    - support groups and classes;
    - social networks;
    - family support; and
    - tele-support.

Diabetes Management – A UK example
http://pathways.nice.org.uk/pathways/diabetes#path=view%3A/pathways/diabetes/managing-type-2-diabetes.xml&content=view-index

NICE Pathways provides information on the management of type 2 diabetes, which includes the following activities:

- patient education;
- dietary advice;
- management of cardiovascular risk, requiring:
    - management of blood lipids and blood pressure; and
    - antithrombotic therapy;
- blood-glucose-lowering therapy;
- identifying and managing long-term complications:
    - eye issues;
    - kidney disease;
    - neuropathy; and
    - depression.

Further guidance is then provided on education and dietary advice, for example.

1.2 BOUNDARY SETTING

Boundary setting is an important step to ensure consistency with respect to what should and should not be included in the appraisal of a module. When appraising condition self-management, the first step is to map out all of the activities a patient undertakes when using the module. Following this, the services required to provide these activities shall be determined and finally the resources (eg consumables, energy, etc.) identified that are required to provide these services.

Self-management of a condition may include a wide range of services. This guidance provides examples of some services that might contribute to self-management of a condition. There are many others that may be appropriate to a specific condition. Each service listed under self-management may be considered as a stand-alone module (eg similar to a GP consultation) and it is expected that further guidance will be developed for these self-management services over time.

To ensure consistency in appraisals, recommended activities, services and resources for condition self-management are presented below.

1.2.1 Activities Undertaken to Provide Condition Self-Management

A patient may use the following activities while self-managing a condition (in no particular order).
(Note: yellow text refers to activities & orange text refers to separate modules to be included in a care pathway)

- Pharmaceuticals: the patient may require the administration of pharmaceuticals to properly manage their condition and prevent complications.
- Tele health/medicine/hotlines: the patient may seek advice, guidance or complete check-ups by contacting hotlines.
- Exercise: the patient may keep healthy through advised physical activity to manage or prevent a condition.
- Integrated care teams and community services: the patient may receive regular support from a team of healthcare professionals.
- Monitoring: the patient can monitor their vital signs to keep their symptoms in check, remotely or with a health professional.
- Education/training: the patient may learn more about their condition and how to manage it by attending classes or researching.
- Therapy: the patient may attend therapy courses.
- Support networks: the patient may receive support from a network of other people with similar conditions or experiences.
- Citizen's advice: the patient may receive help regarding money and legal problems.
- End of life care: the patient may receive support for a terminal illness.
- Travel: the patient may travel to and from any of the above activities (included under patient travel module).

This module is less linear than previous modules described. As such, it is more difficult to define. It covers a whole host of different interactions that do not necessarily take place in one location, in one point in time or in any specific order.

While self-managing, a patient may access a selection of different services available to them. This ranges from attending classes and support networks, to accessing hotlines and assistance. It includes various therapies and social prescriptions such as exercise and the monitoring of their progress by healthcare professionals, who may provide incentives, motivation and reminders.

1.2.2 Services & Facilities Required to Provide Condition Self-Management

To provide these activities, the following services and facilities may be required.

- Buildings where the patient attends classes, undergoes medical examinations, exercises etc.
- Communications systems, such as video conferencing, computers, smartphones for conducting check-ups, remote monitoring, seeking advice and connecting to a support network.

- Administrative services and areas to run the services that support patients in managing their conditions.

Capital goods (eg buildings, car parks) can usually be excluded from the module unless they are known to be material [1] to the performance of the module against the sustainability metrics appraised.

A proportion of the administrative services (eg managing records, building cleaning) shall be allocated to the condition self-management modules as described in the Allocation section of this module.

Excluded from the system are activities which are already covered by other modules. For example, a patient with a long-term condition may regularly attend GP consultations (see GP Consultation module) or be an inpatient at a hospital (see Inpatient Bed Day module), but this shall instead be accounted for by combining the self-management module with the GP consultation or inpatient bed day modules to develop a care pathway map.

1.2.3 Resources Required to Provide Condition Self-Management

Based on the list of activities, services and facilities identified above, the following categories of activity data shall be included:
(Note: green text refers to data that shall be included in an appraisal of the module)

- Facilities, eg energy, water and waste associated with buildings.
- Consumables, eg pharmaceuticals, single use medical devices.
- Medical gases, eg nitrous oxide.
- Equipment, eg communication devices, software technology, reusable medical equipment, hospital beds, furniture.
- Travel, eg staff travel.

Included within the system are the resources which are consumed in providing the services.

A summary of resources and activities that shall be included in this module is presented below. These may be excluded if they can be shown not to be material to the results. Exclusions should be undertaken by applying the materiality rules in the main document, ie no more than 10% of the total impact may be excluded. A list of additional care pathway modules that may be required to connect to this module in order to develop the overall care pathway map is provided. These additional modules are included as examples in order to highlight where this module might fit in to the overall care pathway.

(1) Refer to section 2.6.3 Materiality and Data Screening in the Care Pathways: Guidance on Appraising Sustainability: Main Document

Include these processes:

- Consumables used in self-management
- Pharmaceuticals
- Equipment used in self-management
- Equipment used in shared services
- Electricity, fuel and water use in self-management
- Electricity, fuel and water used in shared services
- Staff travel
- Waste generated
- Cleaning
- Sterilisation
- Administration activities

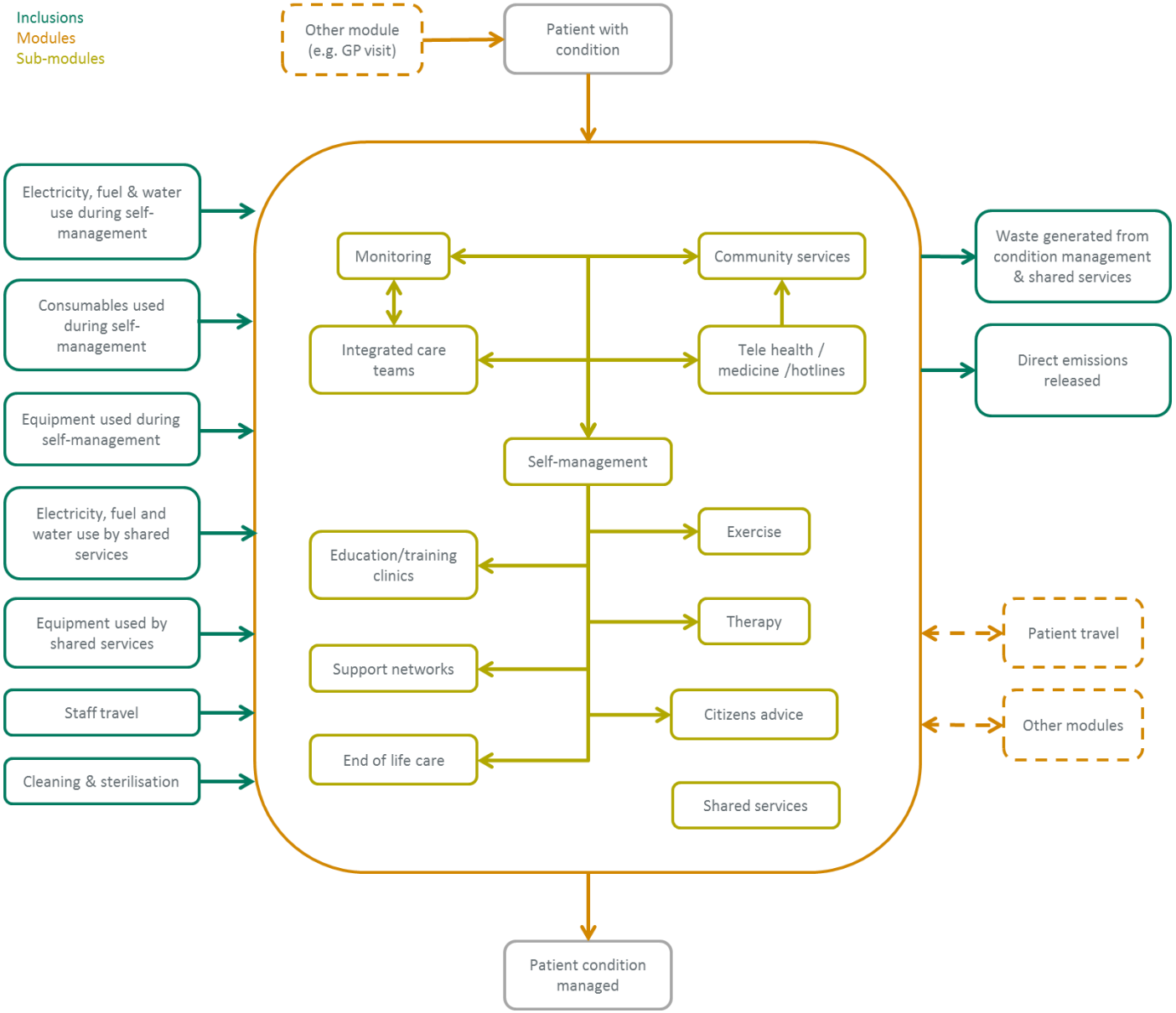
Exclude these processes:

- Capital goods
- Employee facilities
- Staff training

Additional modules that may be required (but excluded from this one):

- Patient travel
- Inpatient bed day
- GP consultation

Figure 1.1 Condition Self-Management Example Process Map



1.3 UNIT OF ANALYSIS

A unit of analysis is identified as a common 'reference flow' or 'basis for comparison' to allow for the module to be included in a care pathway appraisal or to be used to compare different scenarios of the same module (eg self-management habits in different regions or the significance of changes made to an existing recommended self-management regime).

A patient in a defined age range, self-managing a specific condition in a geographical area over a defined time range, through use of a specific set of self-management services.

The unit of analysis shall take into account the number of patients, specify the time over which the patient is managing their condition, state the magnitude of the condition and the services used to self-manage.

- eg an adult patient in the UK with type 2 diabetes, self-managing their condition for one year using remote blood glucose monitoring, dietary guidance and tele health check-ups.

1.4 ACTIVITY DATA

1.4.1 Primary Data

Where required, primary activity data specific to the self-management activities being appraised shall be included. These data are likely to be sourced from a representative sample of healthcare providers involved in the appraisal.

If a self-management regime for a specific condition is being appraised, data shall be collected to represent a patient partaking in self-management for that condition including the following.

- Consumables for self-management activities: the type and quantity of all consumables required for patients to undergo self-management. For the specific condition being appraised and for specific self-management services.
- Equipment for self-management activities: the type, quantity, lifetime and number of uses of equipment required for patients to undergo self-management. For the specific condition being appraised and for specific self-management services.
- Facilities for self-management activities: quantity of electricity, fuels, water and types of waste generated self-management activities relevant to the self-management activity only and above normal activities (eg electricity required to operate an in home dialysis machine). If possible, based upon the equipment required for patients to undergo self-management or alternatively allocated based on floor area and sub-metering, split by the range of services that make up a self-management regime.

- Consumables and equipment for administrative services: the type, quantity, lifetime and number of uses of equipment and type and quantity of consumables relevant to the administrative services required for self-management activities and the hospital services allocated to self-management activities.
- Administrative services facilities: quantity of electricity, fuels, water and types of waste generated relevant to the administrative services required for self-management activities and the hospital services allocated to self-management activities.
- Staff travel: staff surveys to calculate the modes and distances travelled by staff attributable to self-management activities and shared services.

These data are the minimum required to conduct a condition self-management appraisal. Additional activities, services and resources may be identified when mapping the specific self-management regime and these shall be included, noting that they are in addition to the minimum requirements set out in this guidance.

In some instances, it may not be possible to attribute consumables, equipment or facilities data directly to the self-management regime. In these instances, they shall be allocated to the procedure using the collected reference data (eg floor area and patient throughput). Allocation is described further in *Section 1.6*.

If the 'bottom up' data described above are not available, then financial data and cost allocation may be used as proxy to quantify consumables, equipment, facilities and travel data for self-management activities.

1.4.2 Secondary Data

For activities identified in the process map that are outside the direct control of the organisation, suitable secondary data sources can be used. Secondary data are particularly useful to use where activities or modules are not deemed material to the study through a screening exercise or materiality assessment. Primary data collection is still preferred and should be used if it is possible to collect it.

General secondary data sources can be found in *Annex C* of the Main Document and on the GHG protocol website [(1)].

1.5 EMISSION FACTORS

Once primary activity data or secondary activity data have been collected, they shall be combined with the appropriate emission factors in order to calculate the performance of the module against the sustainability metrics.

A default list of emission factors is available in *Annex C* of the Main Document and should be used where specific emission factors are not available. An example of a specific emission factor is the GHG emissions associated with manufacture of a specific type of surgical mask.

(1) GHG Protocol Third Party Databases, http://www.ghgprotocol.org/Third-Party-Databases

If 'bottom up' activity data cannot be collected (eg quantities of types of consumables) then financial data may be used and combined with environmental extended input output (EEIO) analysis databases in order to calculate values for the sustainability metrics. Use of EEIO is considered to convey greater uncertainty and so using emission factors and primary activity data is preferable.

1.6 MODULE CALCULATION STEPS

Steps to appraise the module include the following.

1. Identify all of the separate self-management services required to provide the self-management regime.
2. Map the activities and services associated with each self-management sub-module.
3. Complete a materiality assessment using the module case study in order to understand the significance of the activity data and the module to the pathway (if relevant).
4. If significant, identify sources from which to collect the required activity data. If not significant, use appropriate secondary or case study data and adapt to the specific scenario.
5. Collect the required activity data relevant to the module scenario for each self-management service.
6. Identify how activity data can be allocated the unit of analysis (see Allocation section below).
7. Identify secondary data sources either in *Annex C* of the Main Document or specific to the activity data collected.
8. Perform allocation where necessary and combine the activity data and emission factors.
9. Combine all of the self-management service calculations together to form a picture of the self-management regime.
10. Interpret the findings and follow the guidelines in the main document for reporting and using the case study template in *Annex E of the Main Document*.

1.6.1 Allocation

In the first instance, one should seek to avoid allocation. However, this is often impracticable. Activity data collected for the module may need to be allocated to the particular module and to the unit of analysis. This is described below in order of priority.

- Consumables and equipment used during a self-management activity.
    - i. Collect activity data specific to the unit of analysis in the first instance.
    - ii. Identify consumables and equipment used during a self-management activity specific to the condition and divide by the total number of patients engaging in the activity for the specific condition.
    - iii. If this is not possible, collect activity data on consumables and equipment used during the self-management activity and divide by

the total throughput of patients engaging in the activity for the defined time period.

- Facilities data for self-management activities.
    i. Where possible, identify the facilities data (eg electricity) directly attributable to the self-management activity for a patient with a specific condition (eg by considering equipment use).
    ii. Identify facilities data by sub-module (eg therapy, support networks) for the self-management and use a technical expert (or use cost allocation processes) to estimate the proportion to be allocated to self-management. Divide the resulting data by the total number of patients undergoing self-management.
    iii. Identify facilities data for the relevant departments/buildings. Identify the floor space of the relevant rooms and allocate on this basis, before dividing by the total number of patients undergoing self-management.

- Consumables and equipment used for shared services and administrative services.
    i. Where possible, identify consumables and equipment used throughout the shared services that are directly attributable to self-management.
    ii. Identify all consumables and equipment used by services required to provide self-management and allocate across all patients engaging in self-management over the defined time period.

- Facilities data for shared services and administrative services.
    i. Where possible, attribute shared facilities data directly to the self-management.
    ii. Identify total facilities data for the relevant departments/rooms and allocate to total patient numbers engaging in self-management.

1.7 EXAMPLE CALCULATIONS

Materiality of data should be considered when collecting and appraising data for the module. Materiality refers to the estimated significance of data to the module being appraised. It is recommended that no more than 10% of data contributing any impact appraised be excluded (eg 10% contribution to GHG emissions of the module). Further guidance on estimating significance can be found in the main document and annexes [(1)]. Users may apply a different cut-off percentage (other than 10%) if justified and this shall be reported along with the results of the appraisal.

For a GHG appraisal, additional effort should be taken when appraising the following categories as these are anticipated to be the most significant contributors:

- consumables (eg single use medical devices used);

(1) Refer to section 2.6.3 Materiality and Data Screening in the Care Pathways: Guidance on Appraising Sustainability: Main Document

- energy (eg electricity used directly by the module); and
- transport (eg of patients to, from and within the module).

Other hotspots may be identified when conducting an appraisal and all resources and emissions within the boundaries of the module should be considered for significance before excluding any data point.

Module Self-Management: Education module

Unit of analysis A patient attending a single session of 6 hours of structured self-management group education delivered by 2 trained health care professionals

Included activities

- ✓ Trainer travel
- ✓ Use of consumables and equipment during training
- ✓ Building occupation

Excluded activities

- × Food
- × Administration
- × Patient travel
- × Capital goods (eg building, car parks)

Assumptions DESMOND is an NHS funded program designed to aid patients with diabetes to better self-manage their condition. The program involves newly diagnosed patients attending a six hour workshop involving up to ten participants and run by two health professional educators. It is assumed that each DESMOND sessions are delivered in rooms of at least 32m^2 within NHS community care facilities or similar community education facilities.

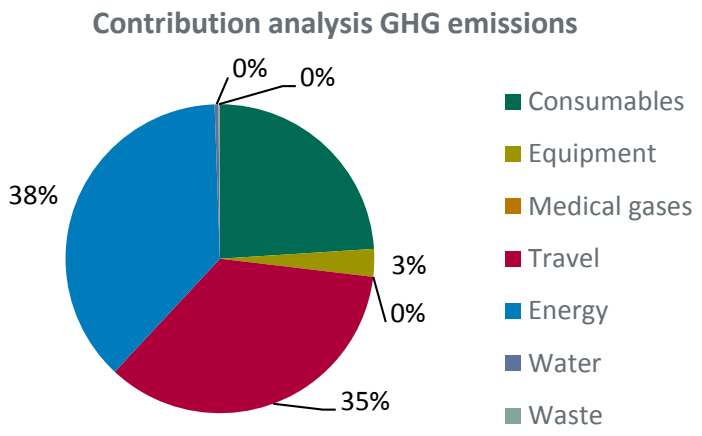
Data sources

- The data collected for patient attendance, staff, consumables, and equipment is based on an interview with Bernie Stribling, director of the DESMOND Program
- Average distance travelled by purpose and main mode: England, 2013, National Travel Survey, Department for Transport statistics

Self-management education (per session)

Per session (6hrs)	GHG Emissions (kg CO_2e)	Fresh water use - direct (m^3)	Fresh water use - indirect (m^3)	Fresh water use - total (m^3)	Hazardous waste (kg)	Non-hazardous waste (kg)	Total waste (kg)
Consumables	0.39	x	x	x	x	x	x
Equipment	0.047	x	x	x	x	x	x
Medical gases	x	x	x	x	x	x	x
Travel	0.57	x	x	x	x	x	x
Energy	0.61	x	x	x	x	x	x
Water	0.0065	x	x	x	x	x	x
Waste	0.0025	x	x	x	x	x	0.016
Total	1.6	x	x	x	x	x	0.016

Note: waste data not possible to disaggregate between hazardous and non-hazardous. No data available for water use.



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