

## DAFNEplus: Individual Support Logic Model

Within the DAFNEplus intervention (Coates et al., 2021), the Individual Support (IS) component comprised five one-to-one sessions delivered at increasing intervals over the 12 month period following the DAFNEplus group course. It was designed to:

1. Reinforce the knowledge and skills around FIIT (Flexible Intensive Insulin Treatment), and self-management introduced in the group course.
2. Support personalisation and application of the knowledge and skills learned during the group course.
3. Foster automisation of routine diabetes management.
4. Increase participant activation to support engagement with FIIT, monitoring and appropriate help-seeking between appointments.
5. Support transition towards sustained, independent management of FIIT.

The IS Logic Model (**Table 1**) describes the:

- features of IS:
  - processes (patterns of interaction between facilitator and participant, or sequence of processing information within the participant),
  - resources (objects or forms of technology),
  - content (information provided as part of the intervention), or
  - structure (a feature of the way the intervention is constructed or delivered).
- influencers of glycaemic management that each feature addresses
- expected outputs (changes in capability, opportunity, motivation) that IS is designed to bring about to promote sustained engagement in the behaviours associated with FIIT and long-term condition self-management.

**Table 2** summarises the Outputs column of the DAFNEplus Programme Theory. Outputs are the desired and hypothesised changes that the DAFNEplus intervention will bring about to deliver the programme's Outcomes (i.e., sustained enactment of behaviours involved in FIIT; see Hamilton et al (2021) for a description of the desired outcomes). Outputs are described using the COM-B model of behaviour change, which outlines the necessary conditions for the performance of three behavioural cycles identified as leading to long-term maintenance of glycaemic outcomes and quality of life. These include:

- capability (the knowledge and skills to perform the behaviours),
- opportunity (the ways in which the physical and social environment enable performance of the behaviours) and
- motivation (the learned and hardwired emotional, belief and attitudinal enablers of the behaviours)

**Table 3** summarises the Influencers column of the DAFNE*plus* Programme Theory. Influencers are those features of the internal and external environment identified as contributing to the sustained enactment of FIIT principles. They may be specific behavioural patterns (e.g., overtreatment of hypoglycaemia), or influences on enactment of behaviours involved in FIIT (e.g. perception of burdens of FIIT behaviours).

**Table 1: Individual Support Logic Model**

Feature	Description	Influencer on Glycaemic Management Targeted	Type	Revision Status	Outputs delivered
Person-centred communication  **cross-cutting	Using language that emphasises the primacy of the person (over the condition), invites shared decision-making and fosters compassionate and empowering interactions. This communication style supports personalisation of goals and adapting to evolving life circumstances.	I9, I12, I16, I18	Process	New	C5, O3
Solution-focussed communication  **cross-cutting	Using language that elicits constructive solutions to challenging problems, models non-judgemental curiosity and facilitates actionable strategies. This communication style supports personalisation of goals and adapting to evolving life circumstances.	I9, I12, I16, I18	Process	New	C3, C5, O3, M1, M2, M4, M5
Behaviour Change Toolkit       <i>Metaphors and other Figures of Speech</i>	Sessions provide information on six principles of cognitive and behavioural self-management used in chronic-disease self-management programmes (knowledge and skills, problem solving, goals and planning, emotions and mindset, routines and habits, social support), along with figures of speech (metaphors, phrases – see below) that summarise the benefit of each principle, and tools to apply that principle to type 1 diabetes self-management.   Metaphors and figures of speech were constructed to help participants make sense of the process of change	I5, I12, I14, I13, I15, I18	Content, Resource	New	C4, C5, O2, M1, M3, M4, M5, M7, M8

Feature	Description	Influencer on Glycaemic Management Targeted	Type	Revision Status	Outputs delivered
**cross-cutting	<p>and to frame the behavioural requirements of FIIT in ways that support enactment and minimise unhelpful thinking patterns and emotional reactions.</p> <p>For example, to help reduce perfectionistic and all-or-nothing responses to out of target blood glucose readings, participants are advised that up to three out of ten readings can be above range and still achieve HbA1c target. 7 out of 10 (70%) within range. To reinforce this in a memorable and relatable way, a metaphor was created that compared the goal of achieving good enough diabetes self-management with flying a plane wherein a plane can deviate from its plotted course for up to 30% of the time but still reach its original destination.</p>				
Widening support network – time/service	Participants offered x5 IS sessions at increasing intervals over one year. In addition, ad hoc contact with Facilitators is available (via phone, online messaging or video). Referrals to local agencies are also considered during IS to support any psychosocial barriers to optimal diabetes management.	I8	Structure	New	O1, O3
Continuity of facilitator	IS sessions held with a facilitator who had run their group course to ensure continuity of care.	I8, I5	Structure, Process	New	O1, O3

Feature	Description	Influencer on Glycaemic Management Targeted	Type	Revision Status	Outputs delivered
Structure of Individual Support Session	IS sessions were structured to (a) open the session by inviting participants to reflect on their progress with the behaviourally focussed action plans set during previous sessions (including the last day of the group course) and the potential drivers and barriers that they may have experienced when enacting/changing their behaviour (b) review data quality on Glucollector, (c) review patterns and agree priorities for next steps in a participant-centred way, and then (d) identify what behavioural steps need to be taken to realise those priorities by inviting participants to complete a behavioural action plan.	I2, I4, I5, I6, I7, I12, I14,	Structure	New	C3, C4, O3, M1, M2, M4, M5
Gradual tapering off of support	Sessions were arranged so that they were increasingly spaced out to encourage autonomy in participants' self-management.	I12, I8	Structure	New	O1, M1
IS Participant form (ISP) and IS Facilitator form (ISF)	Forms completed in advance of each IS session, with prompts to review data and consider priorities for the forthcoming appointment, for both the Participant and the Facilitator.	I9, I12	Resource	New	C3, O3, M1, M2, M4
Coaching in use of the Glucollector diabetes management platform  **cross-cutting	Participant and facilitator collaboratively reviewing glucose and other data on Glucollector or another platform (e.g. Libreview) and discussing how to use this information to enhance self-management using FIIT.	I1, I2, I3, I5, I12, I14,	Process	New	C3, O5, M1, M4

Feature	Description	Influencer on Glycaemic Management Targeted	Type	Revision Status	Outputs delivered
Action planning  **cross-cutting	The process of reflecting on previous self-management efforts (and review of data using Glucollector) to create an actionable self-management plan. All action plans contain the elements of: SMART goal setting, reasons for change, perceived barriers to enacting the goal and potential solutions to overcoming these. Specific action plans were also designed to support enactment of condition-specific behaviours such as those needed for hyper and hypoglycaemia management. The process of structured action planning and review was advanced during IS by considering specific diabetes specialist topics (e.g. split bolus), life events (e.g. pregnancy) and further automisation of routine behaviours, to reduce burden.	I2, I5, I16, 15, I12	Process, Resource	New	C3, M1, M4,

\*\* Features that cut-across the DAFNE*plus* programme

**Table 2: Expected Outputs of DAFNEplus, i.e. Changes in Elements of Capability, Opportunity or Motivation to Enact Behaviours Associated with Flexible Intensive Insulin Therapy**

<b>Output Identifier</b>	<b>Output (Changes in Elements of Capability, Opportunity or Motivation to Enact Behaviours Associated with Flexible Intensive Insulin Therapy)</b>
C1_KnowT1D	Increased knowledge of type 1 diabetes
C2_KnowFIIT	Increased knowledge of Flexible Intensive Insulin Therapy (FIIT)
C3_SkillFIIT	Increased skills in applying FIIT
C4_SkillCBSM	Increased knowledge and skills in applying principles of cognitive and behavioural self-management skills for type 1 diabetes
C5_SkillCong	Increased ability to achieve congruence between FIIT principles and life demands
C6_AttHyper	Reduction in over-reliance on corrective insulin dosing to manage hyperglycaemia
C7_AttHypo	Reduction in over-treatment of hypoglycaemia using carbohydrate
O1_TimeHCP	Increased access to timely and appropriate health professional support over a year
O2_PracEmSupp	Increased access to practical and emotional non-professional social support for self-management
O3_HCPAuton	Exposure to health professional interactions that support autonomy in self-management and avoid stigma
O4_T1DModel	Exposure to other models of people with type 1 diabetes learning how to implement FIIT and self-management strategies
O5_TechAccess	Access to technology that supports capability and motivation to enact FIIT and other diabetes self-management strategies
M1_ConfAdjust	Increases in confidence to independently adjust insulin and ratios to accommodate changes in the condition, life events and transitions
M2_ValueFIIT	Increased perception of the value of enacting FIIT principles
M3_Burden	Reduction in perception of burdens associated with enacting FIIT principles and other diabetes self-management behaviours
M4_EmpwrFIIT	Increases in feelings of success and empowerment in relation to enacting FIIT principles
M5_RedNegEmo	Reduction in emotional states associated with enacting FIIT principles
M6_Hope	Reduced feelings of hopelessness and increased optimism about positive long-term health consequences of type 1 diabetes
M7_SelfCompass	Increases in self-compassion in situations where self-management feels difficult or does not result in expected outcomes
M8_Think	Decrease in thinking patterns associated with procrastination or avoidance in relation to self-management behaviours (e.g. perfectionism, all-or-nothing, catastrophising)

Att=Attitudes, Know=Knowledge, Intent=Intention, Norm=Normative Behaviours, Skill=Behavioural Skills

**Table 3: Behavioural Influencers**

<b>Behavioural Influencer</b>	<b>Influencer</b>
I1_HealthLit	Low health literacy
I2_SkillFIIT	Lack of knowledge and skills to enact Flexible Insulin Intensive Therapy (FIIT)
I3_ForgetTarget	Forgetting blood glucose targets
I4_AdjTarget	Intentional upward adjustment of blood glucose targets
I5_AdaptFIIT	Inability to adapt FIIT principles in response to life events or transitions
I6_OverTxHypo	Over-treatment of hypoglycaemia using carbohydrate
I7_ShortInsHyper	Over-reliance on short acting insulin doses to manage hyperglycaemia
I8_AccHcpFIIT	Lack of access to Health Professionals trained in FIIT principles
I9_NonAutonHCP	Health Professional interactions that do not support autonomous motivation
I10_LackInfoFIIT	Lack of access to reliable information about type 1 diabetes and its management using FIIT principles
I11_LackSupport	Lack of support from friends and family on diabetes-related issues
I12_LowConFIIT	Low confidence in decision making about use of FIIT principles
I13_ProcAvoid	Thinking patterns associated with procrastination or avoidance in relation to self-management
I14_EffortReward	Low effort/reward trade-off for engaging in FIIT
I15_Hopelessness	Hopelessness about long-term consequences of type 1 diabetes
I16_LackSelfCompass	Lack of self-compassion in situations where self-management feels difficult or does not result in expected outcomes
I17_HighBurden	Perceived burden associated with enacting FIIT principles and other diabetes self-management behaviours
I18_NegEmoState	Negative emotional states associated with enacting FIIT principles

**References**

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