



Clinical Design
& Innovation

Person-centred, co-ordinated care

DAFNE – insulin training for Type 1 diabetes

IOP webinar, April 24th 2024

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Living with Type 1 diabetes

- Monitor your bloods and take insulin to match the hormone that is missing....

"Managing T1D is like juggling while you're riding a unicycle on a busy street full of potholes in the middle of a hurricane. To stay on the unicycle, you have to constantly think about where you are now, where you're headed, and what the road and weather conditions will be like in a couple of hours."

The Diabetes Psychologist

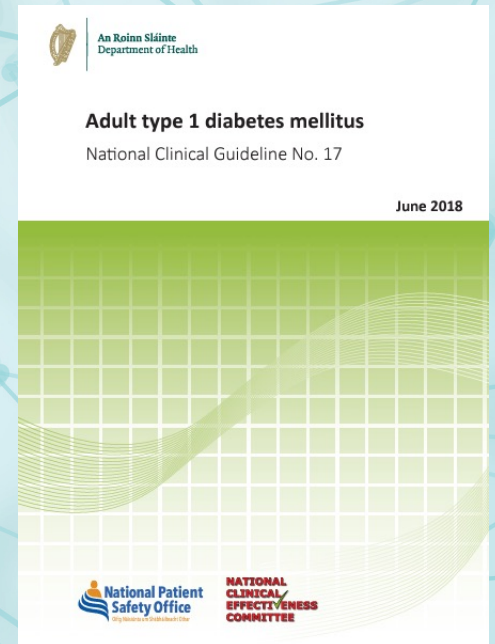


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Dr Mark Heyman LinkedIn profile (available at https://www.linkedin.com/posts/markheyman_you-can-find-this-quote-on-page-53-of-my-activity-6924420848116264960-sIMI?trk=public_profile_like_view)

What can/should we offer?

- Support from a specialist multidisciplinary team (hospital based)
 - Endocrinologist, Diabetes Nurse, Diabetes Dietitian, Advanced Nurse Practitioner, Administrator, Podiatrist, Psychologist....
- Multidose insulin regimens, CGMs and pumps....
- Minimum of 2 consultations per year
 - 3 hours per year (8757 hours remaining....)
- A high-quality structured self-management education programme within 6-12 months of diagnosis
 - e.g. DAFNE (Dose Adjustment for Normal Eating)




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Structured Diabetes Education

“An essential component of T1 diabetes care”^{1,2}

Diabetes Care Volume 44, November 2021 2589




The Management of Type 1 Diabetes in Adults. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD)

Diabetes Care 2021;44:2589–2625 | <https://doi.org/10.2337/dci21-0043>

Richard I.G. Holt,^{1,2} J. Hans DeVries,^{3,4} Amy Hess-Fischl,⁵ Irl B. Hirsch,⁶ M. Sue Kirkman,⁷ Tomasz Klupa,⁸ Barbara Ludwig,⁹ Kirsten Nørgaard,^{10,11} Jeremy Pettus,¹² Eric Renard,^{13,14} Jay S. Skyler,¹⁵ Frank J. Snoek,¹⁶ Ruth S. Weinstock,¹⁷ and Anne L. Peters¹⁸

NICE National Institute for Health and Care Excellence



Type 1 diabetes in adults: diagnosis and management

NICE guideline
Published: 26 August 2015
Last updated: 17 August 2022

www.nice.org.uk/guidance/ng17



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¹Holt et al (2021) Diabetes Care; ²NICE (2015)

Structured Diabetes Education – what's different?

- Goal: **competence** (what individuals know or are able to do in terms of knowledge, skills and attitudes) and **confidence** (the extent to which individuals can adapt to change, generate new knowledge, and continue to improve their performance)¹
- Criteria^{2,3}:
 1. **Philosophy**: underpinned by a patient-centred philosophy
 2. **Curriculum**: written, aim and objectives, detailed lesson plans.
 3. **Trained educators**: familiar with learning theories, facilitation skills to assist the participants to problem solve and set personal goal, diabetes expertise.
 4. **Quality Assurance**: internal and external
 5. **Audit**



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¹Fraser & Greenhough (2001) BMJ);²HSE (2009); ³NICE (2023)

So what is DAFNE?

- 40 hours of training, facilitated by 2-3 diabetes educators, for a group of 6-8 people with T1DM



- Skills to adjust insulin to flexible lifestyle choices, using algorithms to give a greater sense of personal control
- Use experiential learning and DAFNE principles (skills and guidance) to become activated self-managers
- Support people to make informed decisions
- Peer support

The principal aim is to facilitate autonomy, competency and confidence in the self-management of T1DM by providing skills-based training in the areas of carbohydrate counting and insulin dose adjustment in a comprehensive range of situations. This includes the development of problem-solving skills that ultimately leads to improvement in biomedical and quality-of-life outcomes in people with type 1 diabetes and eventual improvements in long-term health outcomes



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Evidence for DAFNE

- RCT data:

- HbA1c ↓ 0.9% without an ↑ in severe hypoglycaemia, more dietary freedom with no effect on weight, and improved quality of life

- Audit data:

- Reduced admissions for DKA and severe hypoglycaemia (n939)²

	Before DAFNE training (baseline)			12 months after DAFNE training			Absolute risk	*Relative risk (95% CI)	P value of the difference
	Total	Range	Rate	Total	Range	Rate			
Admissions for ketoacidosis	57	0-3	0.07	22	0-3	0.03	-0.04	0.39 (0.23, 0.65)	<0.001
Nights spent in hospital as a result of ketoacidosis	210	0-17	0.24	67	0-9	0.08	-0.16	0.32 (0.19, 0.54)	<0.001
Admissions for severe hypoglycaemia	30	0-2	0.03	10	0-2	0.01	-0.02	0.33 (0.17, 0.64)	0.001
Nights spent in hospital as a result of hypoglycaemia	80	0-21	0.09	21	0-8	0.02	-0.07	0.32 (0.20, 0.54)	<0.001
Episodes requiring paramedics	167	0-6	0.18	51	0-5	0.05	-0.13	0.30 (0.19, 0.46)	<0.001
Episodes requiring Accident and Emergency department attendance	53	0-5	0.06	20	0-3	0.02	-0.04	0.37 (0.15, 0.90)	0.029
Episodes requiring both paramedics and Accident and Emergency department attendance	52	0-5	0.06	18	0-3	0.02	-0.04	0.34 (0.13, 0.89)	0.028

DAFNE, Dose Adjustment For Normal Eating.
 *Negative binomial models with a fixed factor for before vs after DAFNE with a population-averaged exchangeable correlation to allow for clustering on centre were used for data which are counts. These models produce relative risks, 95% CIs and P values.



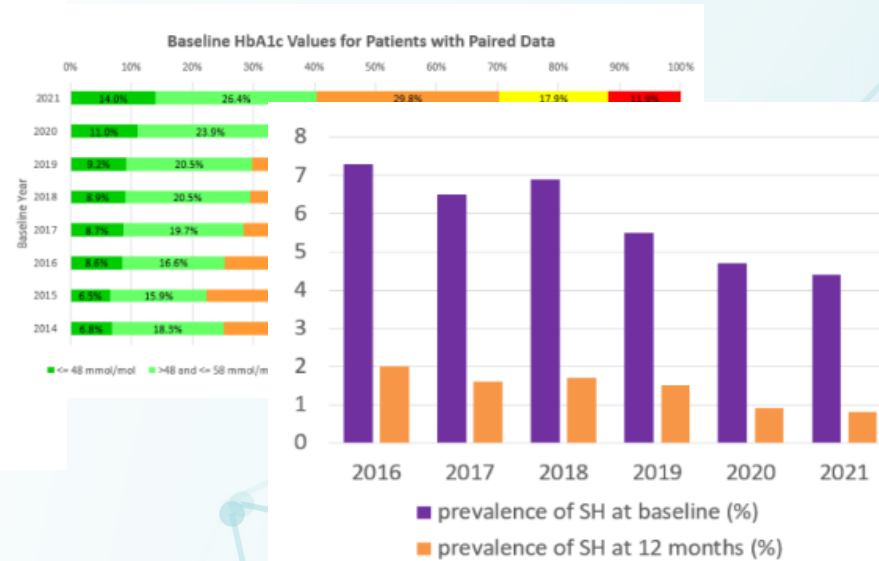
¹DAFNE Study Group (2002) BMJ; ²Elliott (2014) Diabetic Medicine;

Evidence for DAFNE

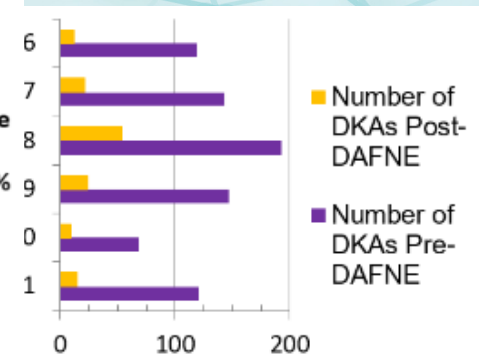
- Sustained improvements in HbA1c, treatment satisfaction, weight, anxiety and depression^{1,2,3}
- Annual KPIs 2021 (post advent of CGM in UK)⁴



Over 14,400 people with type 1



Prevalence of severe hypoglycaemia is reduced by 72 - 82 % each year



Post DAFNE the number of DKA episodes has reduced every year by 72 - 90 %



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¹Hopkins (2012) Diabetes Care; ²Speight (2010) Diabetes Research and Clinical Practice; ³Gunn (2012) Diabetic Medicine; ⁴ DAFNE KPI Annual Report (2021)

Other evidence generated re: DAFNE

- Cost effective¹
 - Cost savings of £93,000 per 100,000 population every year (£48 million nationally in the UK every year).
- Group or 1:1 follow up support is effective²
- 5 day, 5 week and pump formats effective^{3,4}



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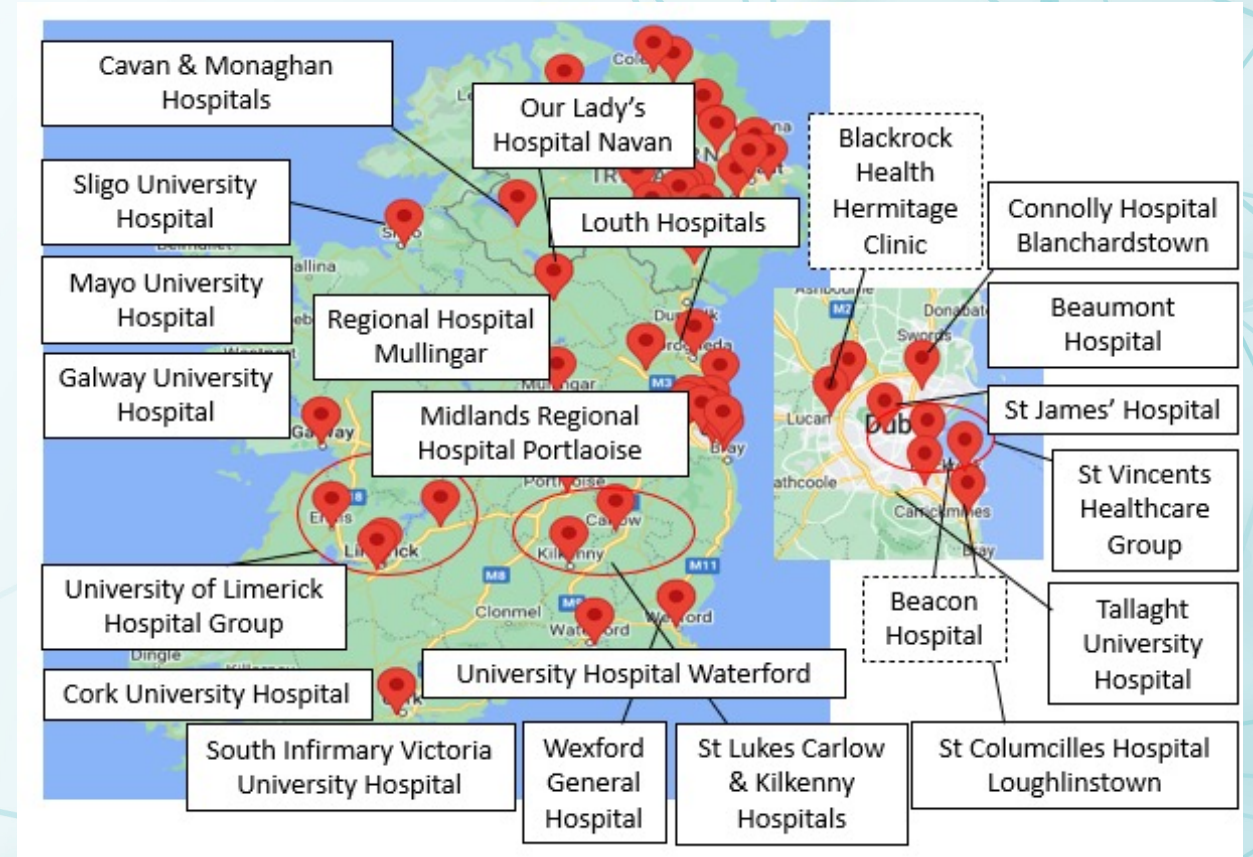
¹Hopkinson (2016) British Journal of Diabetes; ² Dinneen (2013) Diabetes Research and Clinical Practice; ³Hopkins (2012) Diabetes Care; ⁴Speight (2010) Diabetes Research and Clinical Practice;

The course itself

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	
Light orange = Self-directed online learning at home; Dark orange = Group MS Teams call with Educator support						
	<p><u>Learning at home</u></p> <p>Checking the basics:</p> <ul style="list-style-type: none"> Blood glucose checks Ketone checks Insulin injections What is diabetes Intro / recap on carbohydrate counting 	<p><u>Learning at home</u></p> <p>Getting to target:</p> <ul style="list-style-type: none"> DAFNE BG targets 	<p><u>Learning at home</u></p> <p>Managing below target BG:</p> <ul style="list-style-type: none"> BG targets why is optimal 	<p><u>Learning at home</u></p> <p>Managing above target BG:</p> <ul style="list-style-type: none"> Illness management: sick day 	<p><u>Learning at home</u></p> <ul style="list-style-type: none"> DAFNE Quiz 	
<p><u>Educator support (video call)</u></p> <p>Introduction to the Remote DAFNE course</p>	<p><u>Educator support (video call)</u></p> <ul style="list-style-type: none"> Questions about Week 1 Goals & action plans Carbohydrate counting Introduction to Week 2 	<ul style="list-style-type: none"> Skills to adjust insulin to flexible lifestyle choices, using algorithms to give a greater sense of personal control. Use experiential learning and DAFNE principles (skills and guidance) to become activated self-managers. Support people to make informed decisions. Peer support 			<p><u>Educator support (video call)</u></p> <p>Questions about Week 4 management:</p> <p>Reflection and action plans</p> <p>Introduction to the DAFNE</p> <p>Introduction to Week 5</p>	<p><u>Educator support (video call)</u></p> <ul style="list-style-type: none"> Questions about Week 1 - 5 Diary reflection Answers to the DAFNE quiz Goal and action plans for the follow up session in 6 – 8 weeks
	<p><u>Learning at home</u></p> <ul style="list-style-type: none"> Carbohydrate counting practice Keeping a food diary 	<p><u>Learning at home</u></p> <ul style="list-style-type: none"> Carbohydrate counting practice Keeping a food diary The DAFNE insulin regimen 	<p><u>Learning at home</u></p> <p>Carbohydrate counting practice</p> <ul style="list-style-type: none"> Keeping a DAFNE diary <p>Using the DAFNE insulin regimen</p> <ul style="list-style-type: none"> Using the stepwise approach 			

The good news: it's available!

- 250% ↑ in availability since 2016¹
- 22 centres: Some getting up and running, others well established
- Many are looking to recruit!
- Please promote it and ask people with Type 1 diabetes to ask their diabetes teams for more information



¹Breen NDP (2023) Abstract at Irish Endocrine Society Conference

Promoting DAFNE: “why” not “what”

Does type 1 diabetes get in the way of the life you want?

I want to exercise and feel safe

Ask your diabetes team about DAFNE!

Shift work and diabetes don't mix!

On a DAFNE course, you will learn how to:

- adjust your insulin for exercise and illness
- match your insulin to the carbohydrate you want to eat
- bring your Glucose back into target when needed
- live life the way you want to live with diabetes

I want diabetes to fit into my life!

I want to stop having hypos!

I need my driving licence

I have exams and don't want high sugars!

I worry when I have my grandchildren

I want to enjoy my holiday of a lifetime!

I want to have a baby!