

NICE and computable guidelines

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What are computable guidelines?

“...a representation of written guideline recommendations in computer readable [interpretable] format...”

Michaels M. Adapting Clinical Guidelines for the Digital Age: Summary of a Holistic and Multidisciplinary Approach.

Why do we need computable guidelines?

We need to move our guidelines away from long form, narrative content in static web pages or PDFs, so that it can be more easily picked up by clinical system suppliers. This will enable us to:

Focus on what matters most

Guidelines that are implemented in clinical systems, ensure that patients are treated, with our guidelines, based on their clinical presentations.

Provide useful and useable advice

Clinicians will be presented with our guidelines more easily, based on their patient mix. It will also ensure they are provided with the most up to date guidance.

Constantly learn from data and implementation

Ensuring that our guidelines are picked up in clinical systems enables us to learn from its implementation, by using the generated real-world data.

How do we achieve it?

Building on existing work from digital living guidelines





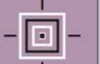


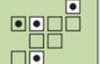
- In May 2022 the NICE content advisory board (CAB) set up “collaborathons”, bringing together clinicians, academics and industry experts working in computable guidance.
- The aim: to explore a range of technical approaches to transition NICE towards production of standards-based computable decision support.
- Initial focus was on type 2 diabetes.
- Two “collaborathons” were held in November 2022 and March 2023.
- Following the collaborathon 1, 3 workstreams were formed, user stories and trigger event, information model and definitions, horizon-scanning and output format.
- Collaborathon 2 consolidated progress across workstreams.
- These were known as the NICE Computable Implementation Guidance (NCIG) Group.

Digital Adaption Kits

Digital Adaptation Kits (DAKs)

Digital Adaptation Kits (DAKs) are part of the WHO's SMART guidelines initiative to ensure evidence-based guideline content is accurately reflected in the digital systems countries are adopting.

The DAKs are software-neutral, operational, and structured documentation based on WHO clinical, health system and data use recommendations to systematically and transparently inform the design of digital systems.

1	Health interventions and recommendations 	Relevant health interventions and recommendations from WHO guidelines and guidance
2	Generic personas 	Roles, responsibilities, competencies and essential interventions performed by targeted personas
3	User scenarios 	Brief narrative description of how the targeted personas may engage with the digital system
4	Business processes & workflows 	Generic workflows representing clinical and non-clinical processes
5	Core data elements 	Data elements used for clinical decision-making, indicators, and other data needs
6	Decision-support logic 	Decision tables representing counselling and treatment algorithms, scheduling logic
7	Indicators and performance metrics 	Indicators for reporting and monitoring with numerator, denominator of data elements based on existing guidance
8	Functional and non-functional requirements 	A non-exhaustive list of key functions and non-functional requirements for a digital tracking and decision support system

QRisk2 in TPP “fixed” but up to 270,000 patients affected



Up to 270,000 patients have been affected by errors in a cardiovascular disease risk digital calculator, which is being blamed on a “code mapping” issues.

“...the company [TPP] said some of these may have received faulty readings that meant their risk of heart attack or stroke was slightly overestimated or underestimated.” Digital Health, 2016

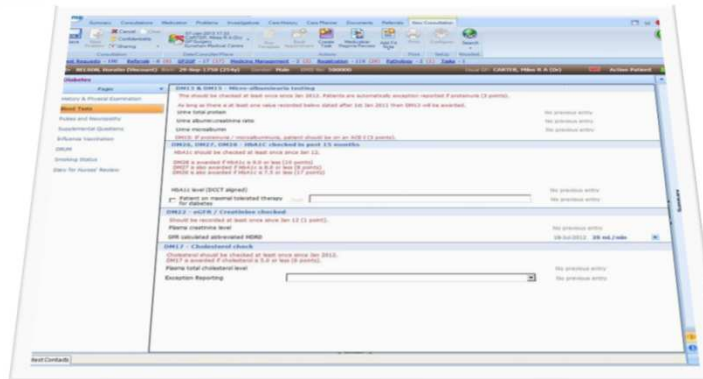
Guideline

Choosing drug treatments

We have produced a [visual summary to provide an overview of the recommendations and additional information to support medicines choice.](#)

- 1.7.1 Discuss with adults with type 2 diabetes the benefits and risks of drug treatment and the options available. Base the choice of drug treatments on:
- the person's individual clinical circumstances, for example comorbidities, contraindications, weight, and risks from polypharmacy
 - the person's individual preferences and needs
 - the effectiveness of the drug treatments in terms of metabolic response and cardiovascular and renal protection
 - safety and tolerability of the drug treatment
 - monitoring requirements
 - the licensed indications or combinations available
 - cost (if 2 drugs in the same class are appropriate, choose the option with the lowest acquisition cost). [2015, amended 2022]

GP template



DAK

			type		system
ID	Process ID	Unique identifier for the process	Free text	(1-1)	NICE1
Person	Person involved	Roles or persons involved in the process	Free text	(1-1)	GP, patient
Objective	Objectives	Objectives or goals of the process	Free text	(1-1)	Reach shared understanding of patient symptoms, test results and care plan
Task set	Task set	Set of tasks or activities within the process	Free text	(1-1)	
Examples	ANC Examples of processes and workflows	ANC examples of processes and workflows from the NICE DAK	Free text	(1-1)	
in	Core data elements	Fundamental pieces of information that are essential for representing and implementing clinical guidelines in a machine-readable format		(1-1)	SMART Guidelines https://www.nice.org.uk/news/digital-health-and-innovation/smart-guidelines
Data	Core data element	The specific data element in record		(1-1)	Adult (over 18)
Data	Data in record	Notes concerning data	Free text	(1-1)	Adult (over 18)
Notes	Free mapping notes	Notes concerning data element in record	Free text	(1-1)	Adult (over 18)
Free mapping	Data dictionary column	The Free mapping notes	Free text	(1-1)	
Data dictionary	Activity ID	Unique identifier for the activity ID	Free text	(1-1)	Patient
Activity ID	Data element ID	Unique identifier for the Data element ID	Free text	(1-1)	
Data ID	Data element label	The data element label	Free text	(1-1)	
Label	Constrained input options	Any relevant constrained input options	Free text	(1-1)	
Constrained	Description	Decision of what to include for each unique data element	Free text	(1-1)	
Description			Free text	(1-1)	

Include the activity ID under which that data will be first collected. It is important to note

Moving from supplier interpreting NICE guidelines for their systems to NICE making guidelines computable.

Collaborate

Continued collaboration

The NCIG will progress with one stream of work, while a NICE team composed of data and analytics and quality standards and indicators colleagues will progress another in parallel.

NCIG (working on type 2 diabetes)

- Agreeing and completing a DAK data model.
- Developing GP template based on the DAK.
- Developing analytical scripts based on the DAK
- Feeding into work by the PRSB and NHSE.

- NICE members on the NCIG.
- Weekly meetings.
- Formal face to face in October.
- Sharing and commenting on each piece of work.

NICE (working on CKD quality standard)

- Using an agreed DAK data model populating for CKD.
- Testing the CKD DAK with interested GPs
- Exploring assistive technologies to produce DAKS e.g AI.
- Proposing how this can be applied to NICE's portfolio.

NICE

Next steps

- Initial NCIG group to carry on with development of DAK for type 2 diabetes as well as additional outputs and discovery work.
- NICE to lead and publish a DAK for CKD quality standard by January 2024 followed by testing.
- Explore computability as a use case for AI.
- Explore secondary care use cases.
- Recommendations to NICE on how we approach computable guideline development in the future.

