

Early Onset Type 2 Diabetes

Sarah Davies, Pam Brown, Julie Lewis

Disclosures

- **Sarah Davies:** I have received honoraria for speaking or support for attending meetings from:
 - Abbott, Amarin, Astra Zeneca, Bayer, Boehringer Ingelheim, Daiichi Sankyo, Dexcom, Lilly, Menarini, NovoNordisk, Roche
- **Pam Brown:** I have received honoraria for writing, speaking or support for attending meetings from:
 - Abbott, Boehringer Ingelheim, Astra Zeneca, Eli Lilly, Janssen, MSD, Napp and Novo Nordisk, OmniaMed, RCGP and Sherborne Gibbs

Julie Lewis - Disclosures & Affiliations

Affiliated with:

- NHS Executive for Wales – National Diabetes Strategic Network
- PCDS – Vice co-chair UK-PCDS
- WEDS
- WAND – Committee member
- JBDS – Chair of JBDS-IP Admission Avoidance Review Committee
- QiC – Judging panel member

Honorary contract / lecturer status:

- Bangor University – Diabetes Module
- Swansea University – Diabetes Practice MSc. Senior Clinical Tutor.

Disclosure:

Attended sponsored meetings/ provided presentations for:

- Sanofi, Eli Lilly, BI, AZ, Novo Nordisk, NAPP. Roche. MORPh, Abbott



Welsh Academy for
Nursing in Diabetes

- Dramatically increasing incidence in Type 2 diabetes in young people, certainly **< 40 years**, but also in people **under 20** years old
 - *As of 2023, England's 18-40 year olds with type 2 diabetes now exceed those with type 1 diabetes*
- The definition of the age ranges that constitute early onset is fluid, but there is consensus that a diagnosis **before age 40 years** is distinct from a diagnosis later in life.

thebmj

Opinion » The Bottom Line

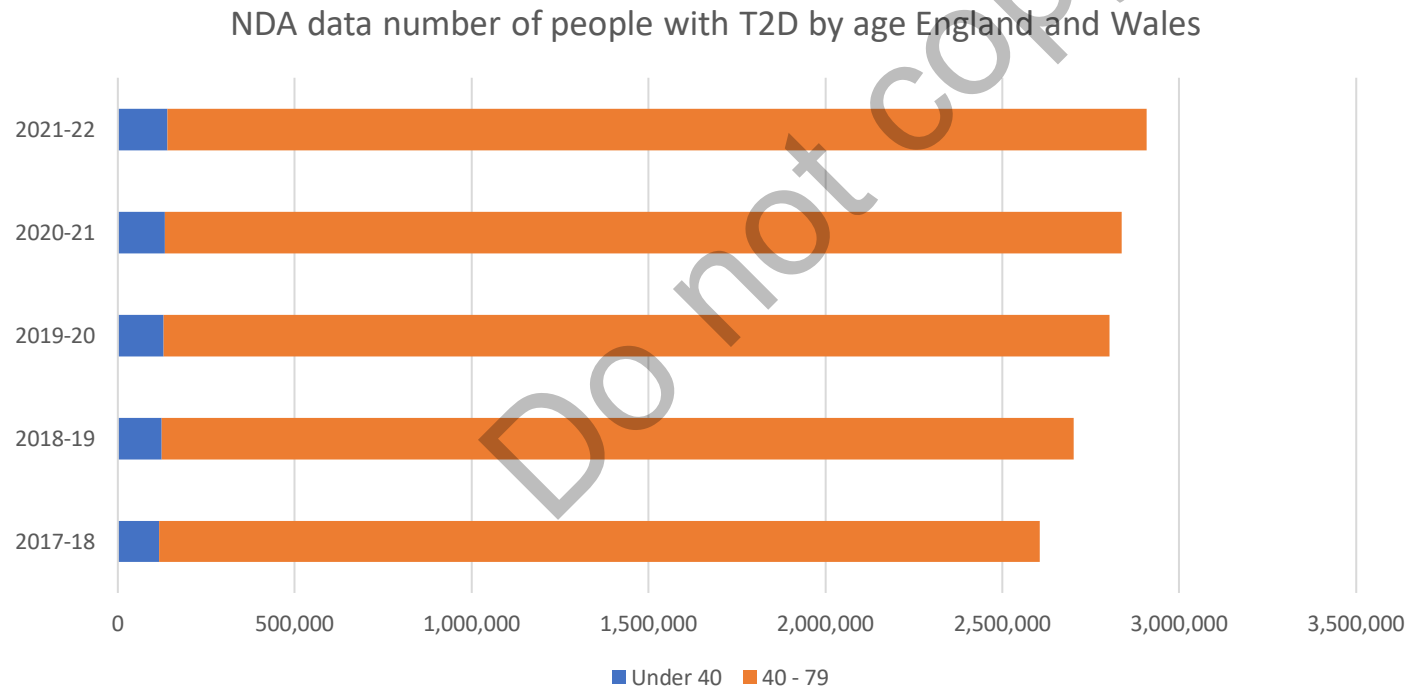
Partha Kar: The time to tackle rising type 2 diabetes is T2DaY

Is EOT2 diabetes different from later onset?

- Huge burden of **complications**
 - Much more aggressive early onset complications, more rapid deterioration in beta cell function
 - Higher risk of **cardiovascular disease**
- High rates **mental illness** and depression
- Higher all cause mortality and **premature deaths**
- Lower rates of completion of care processes and attainment of treatment targets
- **Worse neonatal outcomes** in pregnant women

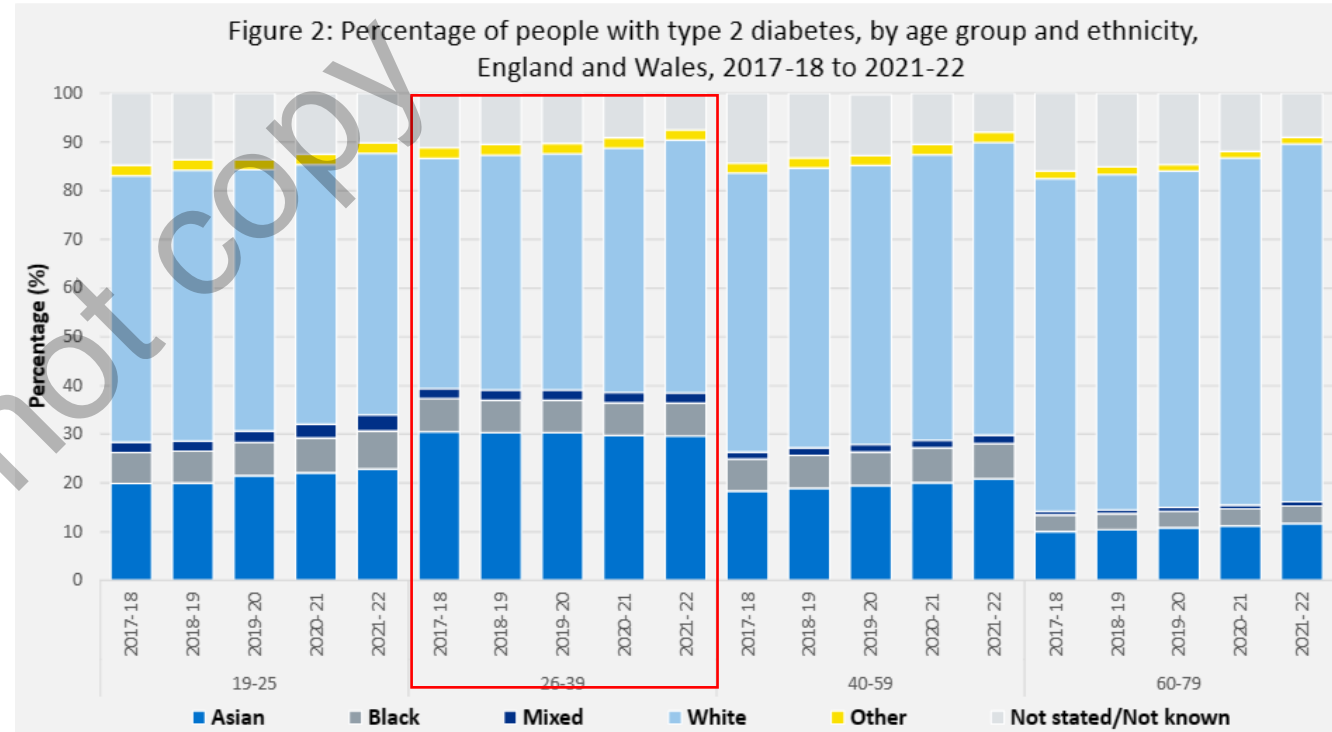
What do we know about the numbers?

- T2D is increasing generally, but a steeper rise has been observed in those under the age of 40
 - Percentage increase of 19% between 2017 and 2022 compared to 11% in those aged between 40 and 79 years old.



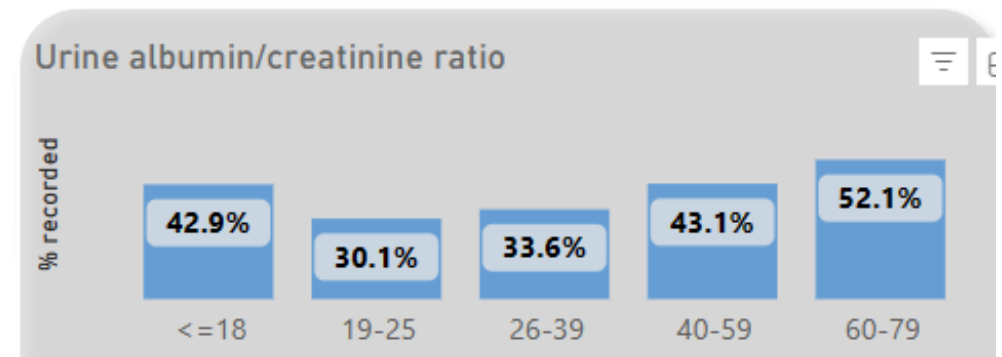
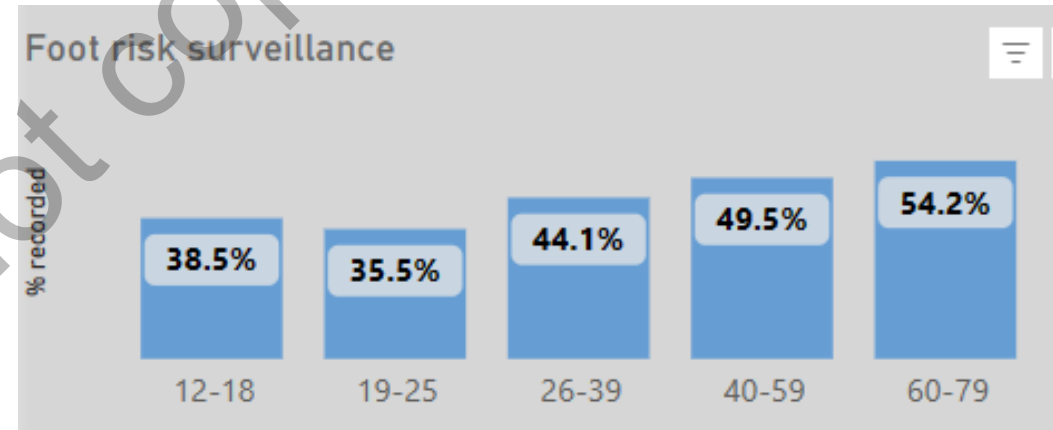
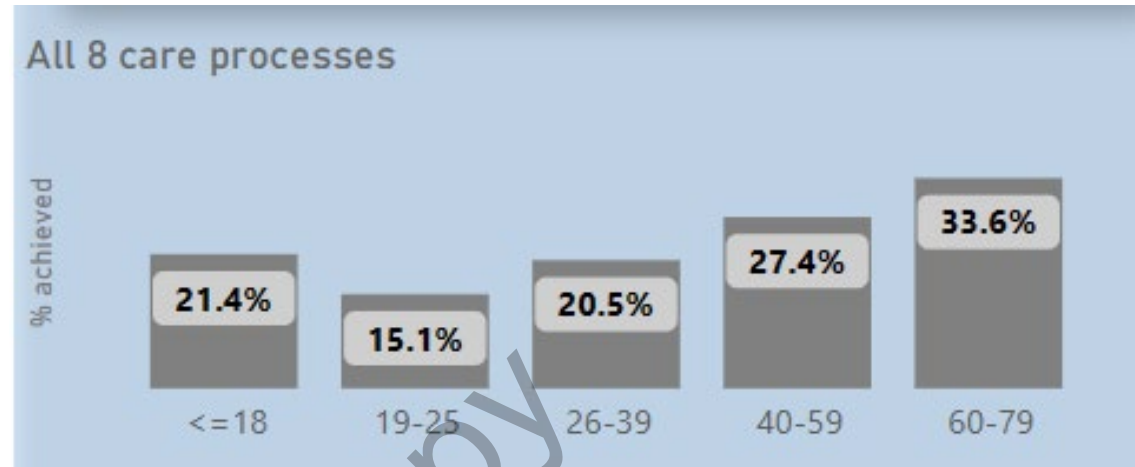
Ethnicity and deprivation

- Young people with type 2 diabetes are more likely to be from Asian and mixed ethnic groups compared to older people with type 2 diabetes
- Young people with type 2 diabetes are more likely to be from deprived areas
 - In 2021-22, 34.3% of those aged 26-39 years old lived in the most deprived areas compared to 22.3% of those aged 60-79 years old
- A greater proportion of young people with type 2 diabetes are living with obesity
 - 74.6% of those aged 26-39 years old were living with obesity compared to 55.0% of those aged 60-79.



Welsh data NDA 2021-22

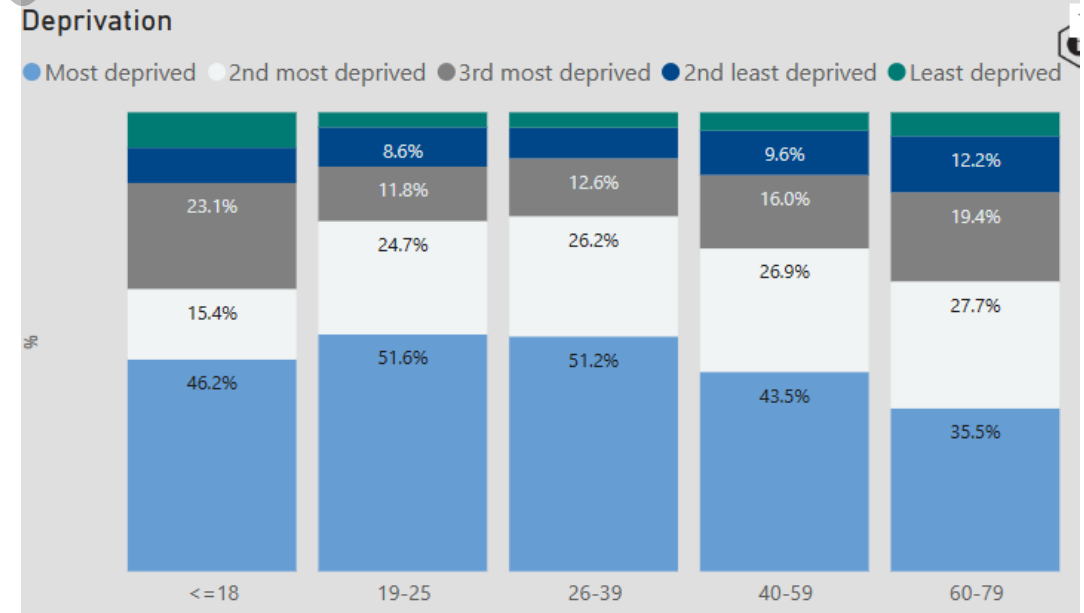
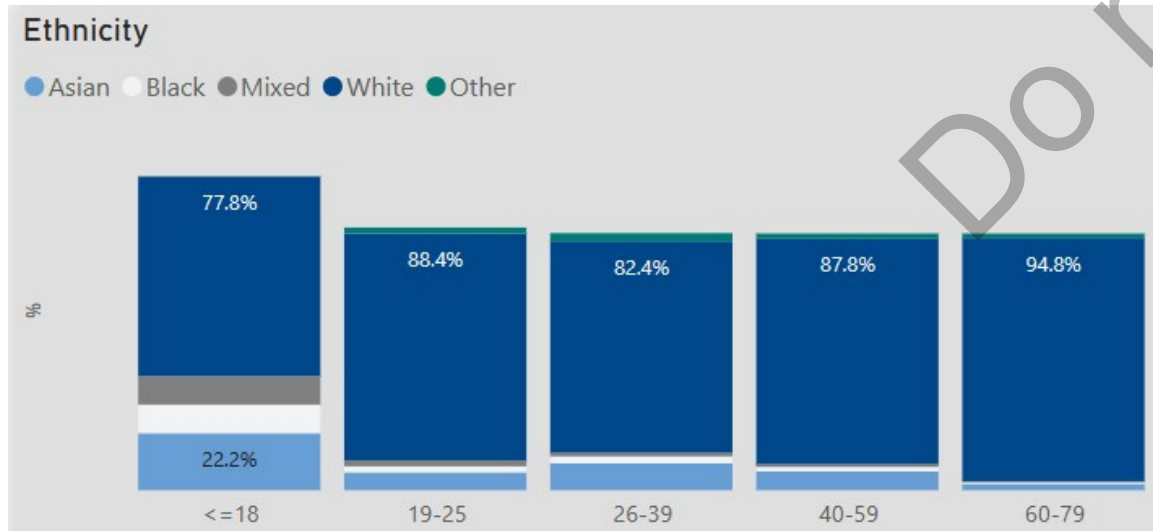
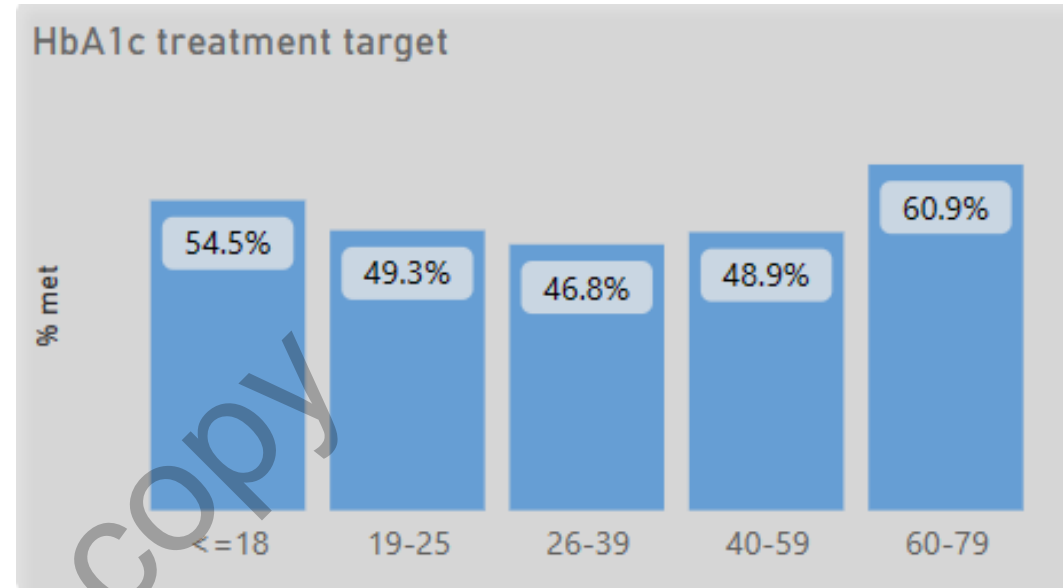
- 6570 with T2D under 40 in the audit
- Less likely to have all 8 care processes completed than older age groups
 - Especially foot check and uACR



Welsh Data NDA 2021/22

Younger people with T2D:

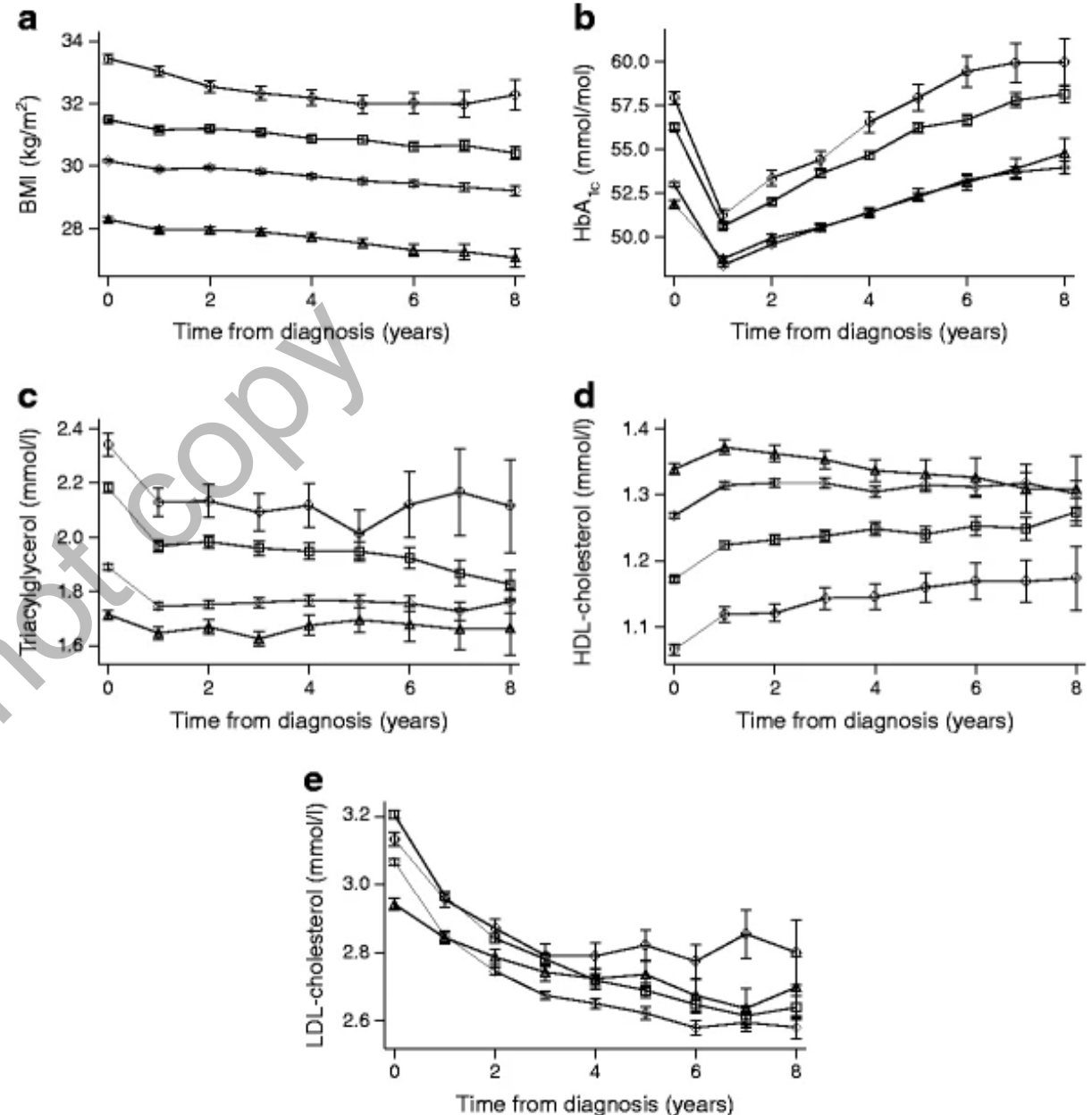
- Less likely to achieve HbA1c < 58mmol/mol
- More likely to be of Asian, Black or Mixed ethnicity
- **Much more likely to be from the most deprived areas**



Short-term progression of cardiometabolic risk factors in relation to age at type 2 diabetes diagnosis: a longitudinal observational study of 100,606 individuals from the Swedish National Diabetes Register



- Individuals who develop type 2 diabetes at a younger age:
 - are more frequently living with obesity
 - display a more adverse lipid profile
 - have higher HbA_{1c}
 - faster deterioration in glycaemic control compared with individuals who develop diabetes later in life.



Yearly averages (95% CI) stratified by age group for (a) BMI, (b) HbA_{1c}, (c) triacylglycerol, (d) HDL-cholesterol and (e) LDL-cholesterol. White circles, 18–44 years old; plus sign (+), 45–59 years old; crosses (×), 60–74 years old; white triangles, ≥75 years old. All analyses, $p < 0.05$ where 95% CI do not overlap

Mortality risk

- It is estimated that Type 2 diabetes results in around 12 years of life lost if developed in someone's teenage years and around 7 years lost if in their 20s or 30s, compared to 4 years lost if diagnosed in their 50s and no years lost if aged over 80

Interactive case study:
Early-onset type 2
diabetes in adults

The clinical implications,
diagnosis and management of
early-onset type 2 diabetes.

Diabetes & Primary Care
25: 129

Earlier diabetes, earlier death

diabetesdistilled
the latest developments filtered for you

https://diabetesonthenet.com/wp-content/uploads/169.-Distilled_EOT2DM-and-life-years-lost.pdf

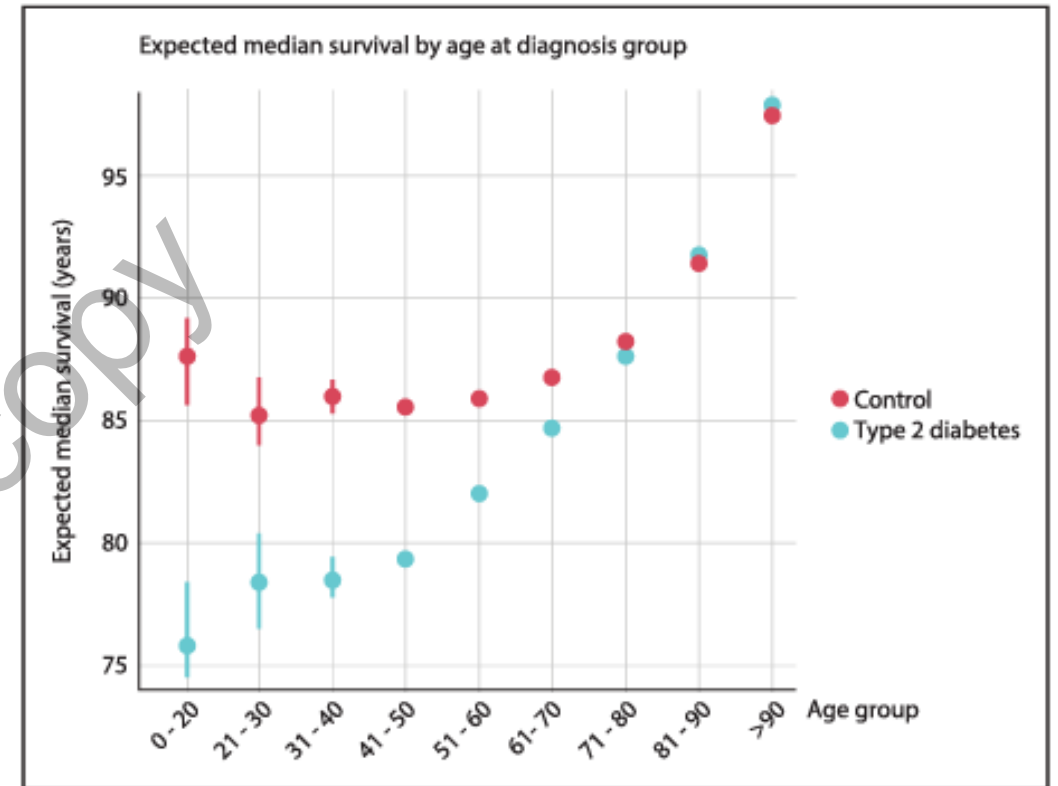
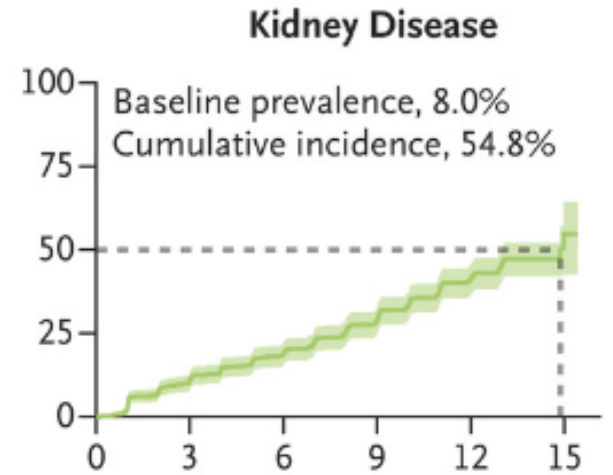


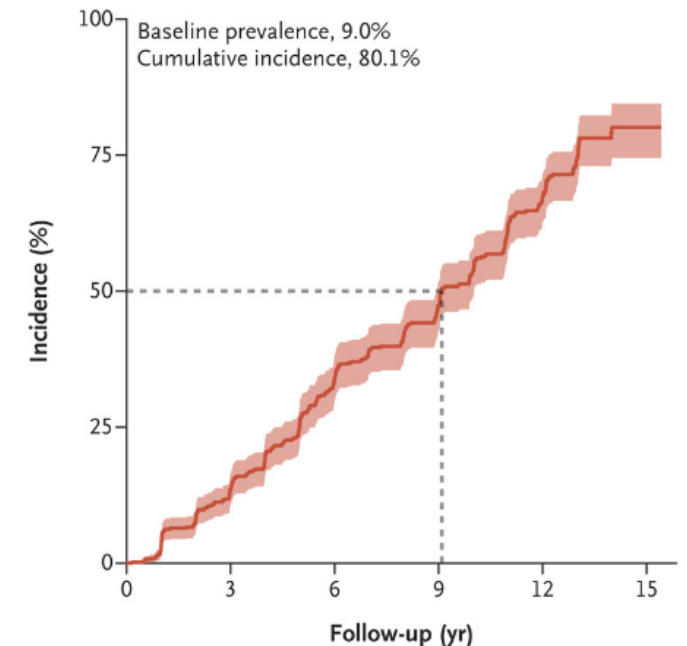
Figure 4. Age at diagnosis of type 2 diabetes mellitus and loss of life-years in persons without previous cardiovascular disease and without any restriction on the duration of type 2 diabetes mellitus.

TODAY study

- Longitudinal study following a group of people with youth onset type 2 diabetes (diagnosed <18 years)
- CKD: prevalence at baseline was 8.0%, and the cumulative incidence at 15 years was 54.8%.
- Retinopathy: At baseline, 13.7% had very mild non-proliferative diabetic retinopathy. After 7 years 51.0% had eye disease, including 8.8% with moderate to severe retinal changes
- Much higher rates than in both later onset T2D and in T1D.



B Any Microvascular Disease



Do we need to change our approach for this age group?

- People aged 19 to 39 years old with type 2 diabetes were less likely to receive all 8 care processes and attain treatment targets (NDA 2022)
- Major issues linked with social deprivation
- T2Day NHSE
 - Funding for ICS across NHSE to provide enhanced levels of care for this group
 - Extra reviews, encouragement to complete care processes and address treatment targets, support for psychosocial needs, access to remission programmes, pre pregnancy planning, pregnancy support, onwards referrals – remission, wt mx etc
 - Increase HCP awareness of increased risk in this age group



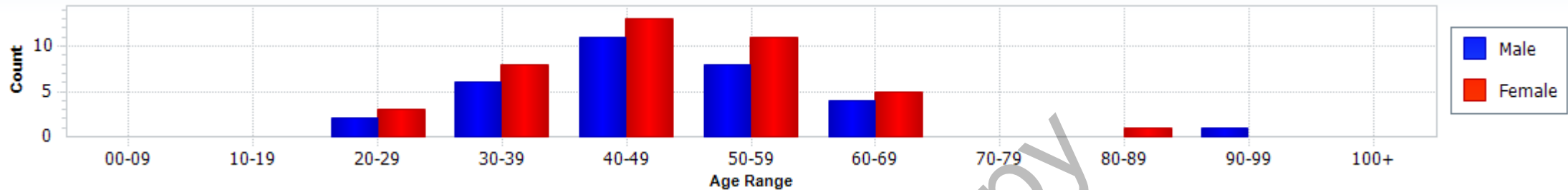
What can we
do in primary
care for now?

Search for your patients <40years with T2D

- Overdue review? – get them in the door, consider flexible clinic timings – after work etc
- Text reminders, send online templates to complete
- Longer appointment time?
- Education and support – appropriate for person eg online
- Right type of diabetes diagnosis?
- Care processes complete?
- HbA1c above target?
 - More aggressive treatment at an early stage
 - Lower HbA1c target
 - Legacy effect
 - Early use of SGLT2i/GLP1
- Pregnancy planning advice?
- CV risk factor management – lifetime risk

QIP example

- 73 diagnosed aged < 40 years from total of 524 with T2DM; age range 20-90 now;



- 19 people currently under age 40 years – age range 20 to 37 years; all antibody negative, agreed T2DM
- Urgent review of the notes starting with those under 40:
 - BMI range 20 to 64 with 5 BMI <30 reflecting ethnicity; inaccurate height coding leading to inaccurate BMIs
 - 5 Asian/Middle Eastern ethnicities common, mental health issues; delays in arranging blood tests and follow up
 - 5 in remission after lifestyle changes/weight loss
 - 5 missed retinal screening appointments or hospital eye clinic – all re-referred and counselled on importance
 - Incomplete data for Fib 4 scoring yet many likely have MASLD
- Action
 - Virtual record reviews of remaining 54 to check appropriate management – 2 oldest known to be in remission
 - 5 urgent contacts in under 40s - one lapsed treatment, 3 previous high HbA1c, not attended blood tests/reviews, 1 complex problems, hospital care defaulted
 - Reinforced accurate coding BMI, ensure care processes complete and tight targets in these people,
 - Fib-4 scoring and use as prognostic indicator¹ for those with BMI>30. Calculate lifetime CV risk for those <40

This represents a significant workload currently and for the future

1. Astee et al 2023 DOI:<https://doi.org/10.1016/j.lanepc.2023.100780>; https://diabetesonthenet.com/wp-content/uploads/2.-Distilled_Fib-4.pdf



HOW TO CONDUCT AN EXTENDED REVIEW FOR PEOPLE WITH EARLY-ONSET TYPE 2 DIABETES

What and why

- Early-onset type 2 diabetes (EOT2D) is defined as that developing in people below the age of 40 years. It is more common in people from ethnic minorities (particularly South Asian) and in the most socioeconomically deprived areas.
- EOT2D has a more aggressive phenotype than older-onset type 2 diabetes. Many people with EOT2D are living with obesity and many have concurrent unmet psychological and social needs.
- Despite this, they are less likely to receive recommended care processes and tend to have higher HbA_{1c} and worse outcomes than people with older-onset type 2 diabetes.
- In response to this, the T2Day programme has been developed in England to provide extended diabetes reviews for adults aged 18–39 years with type 2 diabetes.
- Young people aged <18 years with type 2 diabetes should receive care from specialist multidisciplinary paediatric diabetes teams and should be offered referral if not currently under specialist care.
- This article details the areas that should be covered within an extended review for people with EOT2D. Although these reviews have been specifically funded in England, young adults with EOT2D have high risk wherever they live, and the principles of care should be applied for all.

Author: Chirag Bakhai, GP, Tutor, and Clinical Advisor to the Diabetes Programme, NHS England

Citation: Bakhai C. (2024) How to conduct an extended review for people with early-onset type 2 diabetes. *Diabetes & Primary Care* 26. [Early view publication]

Notes on EOT2D reviews

- Reviews are in addition to routine care.
- It is expected that 30 minutes of contact with a suitably qualified healthcare practitioner will generally be required.
- The intent is not for the review to be a “tick-box” exercise; rather, there should be sufficient time to focus on particular unmet needs, guided by the priorities of the person with diabetes.

Complete annual care processes

- HbA_{1c} (particularly if glucose-lowering medication has changed or last HbA_{1c} was checked >6 months ago)
- Blood pressure
- Cholesterol
- Foot checks
- Urinary ACR
- Serum creatinine
- Weight
- Smoking status
- Reinforce the need to attend retinal screening

Classification of diabetes type – is this type 2 diabetes?

- Consider features that do not fit with EOT2D, for example:
 - Relatively low BMI (although consider lower BMI thresholds in non-white ethnicities)
 - No features of insulin resistance or metabolic syndrome
 - No family history of type 2 diabetes
- Do not use age, BMI or ethnicity alone to exclude type 1 diabetes (see [NICE NG17](#)). Consider type 1 diabetes if one or more of:
 - Ketosis
 - Rapid weight loss
 - BMI <25 kg/m²
 - Personal and/or family history of autoimmune disease
- Consider MODY if strong family history of diabetes, especially if identified in multiple generations at young ages.
 - Bear in mind that a parent may have been misclassified as having type 1 or type 2 diabetes
 - See [national guidelines for eligibility for MODY testing](#)
- Review classification of diabetes type regularly, as features may develop that indicate an alternative diabetes subtype.
- If there is concern about misdiagnosis, follow local pathways for further assessment.
 - If type 1 diabetes is strongly suspected, urgently discuss with specialist care – do not delay starting treatment

Contraception and preconception planning

- Review medications for glycaemia and cardiovascular risk (e.g. statins, ACE inhibitors, ARBs) – contraception should be used if taking potentially teratogenic drugs.
- Consider all women of child-bearing potential who choose not to use contraception as likely to become pregnant.
- For women who are trying for pregnancy or likely to become pregnant:
 - Prescribe folic acid 5 mg daily
 - Stop glucose-lowering drugs apart from metformin and insulin
- If needed, commence insulin initiation in line with local pathways
- If actively trying for pregnancy, an HbA_{1c} target of <43 mmol/mol may be suggested
- Follow local pathways for preconception support/review
- Advise women with EOT2D to urgently notify their GP practice or diabetes team if they have a positive pregnancy test – refer urgently to Diabetes in Pregnancy team for antenatal clinic review within a week to reduce pregnancy risks.

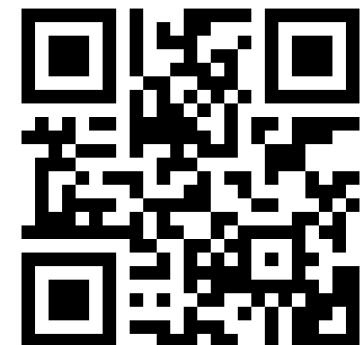


PCDS
Primary Care
Diabetes Society

Early-onset type 2 diabetes resources

About early-onset type 2 diabetes

	<p>FutureNHS</p> <p>Official resources from NHS England, including shared resources from various delivery sites (sign-up required)</p> <p>Link</p>	
	<p>How to conduct an extended review for people with early-onset type 2 diabetes</p> <p>A checklist of areas to cover in an extended review of type 2 diabetes in adults aged under 40 years</p> <p>Link</p>	
	<p>At a glance factsheet: Early-onset and youth-onset type 2 diabetes</p> <p>A quick guide to the characteristics, implications and management of type 2 diabetes occurring in younger adults, children and adolescents</p> <p>Link</p>	
	<p>Early-onset type 2 diabetes: Clinical implications, diagnosis and management</p> <p>Diagnosis, clinical implications and management of early-onset type 2 diabetes, with a particular focus on adults under 40</p> <p>Link</p>	
	<p>The NHS T2Day (Type 2 Diabetes in the Young) programme: Addressing unmet need, improving awareness and building evidence</p> <p>Chirag Bakhai introduces the T2Day programme in England</p> <p>Link</p>	
	<p>Engaging with and optimising care for people under age 50 years with type 2 diabetes: The DiAST model of care</p> <p>Embedding processes to engage with this hardily reached group leads to improved care process attainment</p> <p>Link</p>	
<p>Confirming the diagnosis</p>		
	<p>How to correctly diagnose and classify diabetes</p> <p>A quick guide for primary care on ensuring that diabetes is diagnosed correctly and accurately</p> <p>Link</p>	
	<p>Exeter Diabetes App</p> <p>The Exeter Diabetes App provides information on diagnosing and treating subtypes of diabetes, including MODY</p> <p>Link</p>	



Balancing Therapies with Diet & Lifestyle Support for Younger People with Type 2 Diabetes

What is the current service offer for people with EOT2DM?

Utilising the accelerated (NICE) pathway to GLP-1 /GIP therapies safely in the younger T2 population

Do not copy

General Obesity Update

- Wales may have highest obesity rate of the 4 Nations
- Self reported weight measurements utilised for BMI calculation underestimates for weight and overestimates for height.
- **Wales' real obesity rate has been hidden by data collection approach**
- **Analysis finds over a third of Welsh adults are obese, rising to 34% from official figure of 26% - making it highest rate of all UK nations** – Additional 200,000 people
- Nesta has published (April 2024) that when self-reported data in Wales is adjusted similarly to Scotland and England, the obesity rate for Wales becomes 34% not 26% - a third of the population in Wales – this aligns with obesity rates for wales in children (professionally measured); which are also highest in Wales v England or Scotland
- Being > 55- 64 yrs are the highest obesity risk in adult population
- Coupled with this age group being more susceptible to adverse health conditions is placing a significant impact upon health services
- This is a major public health issue requiring system wide service adjustment.



But Back to EOT2DM

Do not Copy

Supporting Weight Loss

- DiRECT 5 yr follow up studies are encouraging. Aged 20-65 yrs with a <6yr duration of T2dm.
 - Sustained weight loss was the dominant driver for remission
 - Of those in remission at year 2, 26% remained in remission at 5 years. Serious adverse events in the original intervention group (4.8 events per 100 patient-years) were under half those in the control group (10.2 per 100 patient-years, $p=0.0080$).
- People with EOT2DM seemingly have much to gain from dedicated dietary and lifestyle support, but may be more difficult to engage
- Wales (AWDIG) Counterweight project replicated VLCD results
- Needs active service offer where referrals are expected as early as possible within the T2 pathway. 3 HB's offer a remission service
- Whilst access to remission services are sparse in Wales, NG18 / 28 supports injectable therapy management earlier in a T2 treatment pathway for younger people.


Accelerated Therapy Management in EOT2D

May 2023: NICE reviewed the evidence on glucose-lowering agents for children and young people with Type 2 diabetes

Remission program for Wales is not currently well developed

Therapies (NG18) escalating to GLP-1 therapies sooner in the treatment pathway – What are the implications for safe prescribing management?

Some considerations for diabetes and pregnancy – the NPDA



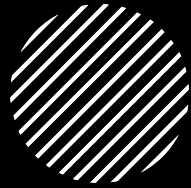
National Pregnancy
in Diabetes Audit
1st Jan 2021 – 31
Dec 2022

- Do not copy
- **This audit has 3 key questions:**
 - Were women with diabetes adequately prepared for pregnancy?
 - Were appropriate steps taken during pregnancy to minimise adverse outcomes to the mother?
 - Were adverse neonatal outcomes minimised?

Pregnancy

- In the most recently published National Pregnancy in Diabetes Audit report, the number of pregnancies in women with type 2 diabetes surpassed the number in women with type 1 diabetes for the first time (NHS England, 2023b).
- Rates of adequate preparation for pregnancy were worse in women with type 2 diabetes than in those with type 1 diabetes (9.5% and 17.6%, respectively)
- There were clear disparities by socioeconomic deprivation and ethnicity, and there were higher rates of serious adverse pregnancy outcomes (6.6% and 5.1%, respectively), including birth defects and baby deaths.
- While trends for pregnancy outcomes in women with type 1 diabetes seem to be improving, they appear to be getting worse for those with type 2 diabetes

Detecting T2 Diabetes in Pregnancy



- National discussions: Do we?
 - Screen all for diabetes as early as possible when pregnancy is confirmed
 - Screen those with an identified risk factor as soon as possible when pregnancy is confirmed
- What we can do:
 - Improve screening recall & uptake of education for those with PMH of gestational diabetes
 - Be proactive to improve self-referral to structured education

Pathway

- With EOT2DM and T2DM in pregnancy rates climbing, medication safety must be incorporated into the plan of care
- Accompany any initiation of SGLT2i and GLP-1, combination GLP-1/GIP therapies with advice and guidance for those of childbearing age
 - Contraception counselling with documented plan (include advice re vomiting and delayed gastric emptying)
 - Teratogenic risks – When to stop/change treatments in pregnancy planning
- ***3 Months is consensus***
 - Pre conception plan for optimising health safely - Referral
 - Weight management
 - DM control
 - Hypertension management
 - Folic Acid
- Reassurance for healthy pregnancy when safety measures, safe prescribing and health & wellbeing factors are aligned.
- Raise awareness generally – increasing purchase of OTC therapies in those overweight and no diabetes


Case Study



- 32 year old lady
- Diagnosed with Type 2 Diabetes 3 years ago
 - Presented with some osmotic symptoms, recurrent thrush and had bloods taken, HbA1c was 106mmol/mol
- Last HbA1c 14 months ago - 78mmol/mol, now **82mmol/mol**
- BMI 36.7
- BP 148/94
- Had 3 children, not planning any more. IUD in situ.
 - Had GDM on last 2 pregnancies
- Busy – working long tricky hours as a carer, 3 young children
- Hx depression and anxiety
- Overdue retinopathy screening, no ACR since an abnormal result at time of diagnosis (4.2mg/mmol)
- Meds: Metformin 1g bd, gliclazide 80mg bd, empagliflozin 10mg, ramipril 5mg, sertraline 100mg
 - Admits forgets 3-4 times per week



Qrisk 3 10 year CV risk

ClinRisk  **Welcome to the QRISK[®]3-2018 risk calculator <https://qrisk.org>**

This calculator is only valid if you do not already have a diagnosis of coronary heart disease (including angina or heart attack) or stroke/transient ischaemic attack.

[Reset](#) [Information](#) [Publications](#) [About](#) [Copyright](#) [Contact Us](#) [Algorithm](#) [Software](#) [UKCA](#)

About you

Age (25-84):

Sex: Male Female

Ethnicity:

UK postcode: leave blank if unknown

Postcode:

Clinical information

Smoking status:

Diabetes status:

Angina or heart attack in a 1st degree relative < 60?

Chronic kidney disease (stage 3, 4 or 5)?

Atrial fibrillation?

On blood pressure treatment?

Do you have migraines?

Rheumatoid arthritis?

Systemic lupus erythematosus (SLE)?

Severe mental illness?
(this includes schizophrenia, bipolar disorder and moderate/severe depression)

On atypical antipsychotic medication?

Are you on regular steroid tablets?

A diagnosis of or treatment for erectile dysfunction?

Leave blank if unknown

Cholesterol/HDL ratio:

Systolic blood pressure (mmHg):

Standard deviation of at least two most recent systolic blood pressure readings (mmHg):

Body mass index

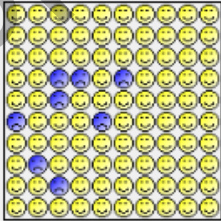
Height (cm):

Weight (kg):

Your results

Your risk of having a heart attack or stroke within the next 10 years is: **7.8%**

In other words, in a crowd of 100 people with the same risk factors as you, 8 are likely to have a heart attack or stroke within the next 10 years.



Risk of a heart attack or stroke

Your score has been calculated using estimated data, as some information was left blank.

Your body mass index was calculated as 36.73 kg/m².


How does your 10-year score compare?

Your score	
Your 10-year QRISK [®] 3 score	7.8%
The score of a healthy person with the same age, sex, and ethnicity*	0.3%
Relative risk**	24.7
Your QRISK [®] 3 Healthy Heart Age***	66

* This is the score of a healthy person of your age, sex and ethnic group, i.e. with no adverse clinical indicators and a cholesterol ratio of 4.0, a stable systolic blood pressure of 125, and BMI of 25.
** Your relative risk is your risk divided by the healthy person's risk.
*** Your QRISK[®]3 Healthy Heart Age is the age at which a healthy person of your sex and ethnicity has your 10-year QRISK[®]3 score.

[Calculate risk](#)

Qrisk3 lifetime score

ClinRisk  Welcome to QRISK[®]3-lifetime cardiovascular risk calculator: <https://qrisk.org/lifetime>

This calculator is only valid if you do not already have a diagnosis of coronary heart disease (including angina or heart attack) or stroke/transient ischaemic attack.

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Are you on regular steroid tablets?

A diagnosis of or treatment for erectile dysfunction?

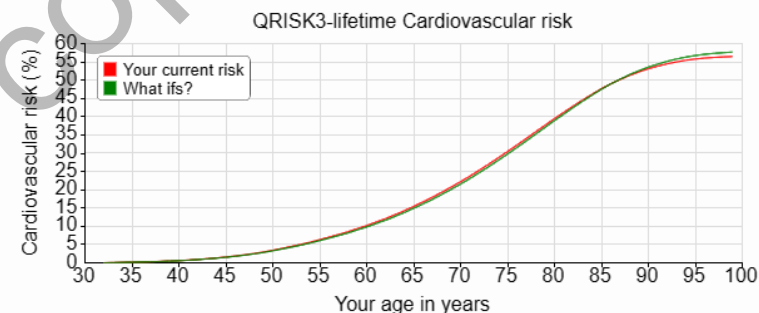
Modifiable risk factors - leave blank if unknown

	Current	What if?
Smoking status:	<input type="text" value="non-smoker"/>	<input type="text" value="non-smoker"/>
Cholesterol/HDL ratio:	<input type="text"/>	<input type="text"/>
Systolic blood pressure (mmHg):	<input type="text" value="148"/>	<input type="text"/>
Standard deviation of at least two most recent systolic blood pressure readings (mmHg):	<input type="text"/>	<input type="text"/>
Height (cm):	<input type="text" value="165"/>	<input type="text"/>
Weight (kg):	<input type="text" value="100"/>	<input type="text"/>

Your results

Your QRISK3-lifetime score

Your lifetime risk (i.e. by the time you are 99) **56.5%** **57.7%** Current What if?



In other words, in a crowd of 100 people like you,

- 56 will develop heart disease or have a stroke/TIA by the time they reach 99.

Your score has been calculated using estimated data, as some information was left blank.

(If you can only see one line in the graph, that's because the risk profiles are the same, and one line has been drawn on top of the other.)

- Engage, build therapeutic relationship
- Discuss weight in a supportive way
 - Language Matters Obesity
 - Weight management support, dietitians
- Address mental health where possible
 - Consider referral, mental health support
- Ensure care processes complete
- Discuss lifetime CV risk
- Review medications
 - Glycaemic control, target?
 - **Early use of a GLP1**
 - Look at ways to improve adherence eg once daily/once weekly dosing
 - Discuss a statin
 - Address BP ?titrate ramipril



Conclusions

- Type 2 diabetes in people under 40s is rising faster than other age groups
 - Marked link with deprivation and Asian/Black/Mixed ethnicity
 - Associated with significant burden of early complications and worse outcomes
 - Less likely to receive care processes and obtain treatment targets
 - Consider accelerated therapy, early use of GLP1s
 - Need to consider pregnancy risk
-
- Great opportunity for QI work to target this group in primary care

Resources

How to conduct an extended review in people with EOT2D

HOW TO CONDUCT AN EXTENDED REVIEW FOR PEOPLE WITH EARLY-ONSET TYPE 2 DIABETES

What and why

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- In response to this, the T2Day programme has been developed in England to provide extended diabetes reviews for adults aged 18–39 years with type 2 diabetes.
- Young people aged <18 years with type 2 diabetes should receive care from specialist multidisciplinary paediatric diabetes teams and should be offered referral if not currently under specialist care.
- This article details the areas that should be covered within an extended review for people with EOT2D. Although these reviews have been specifically funded in England, young adults with EOT2D have high risk wherever they live, and the principles of care should be applied for all.

Notes on EOT2D reviews

- Reviews are in addition to routine care.
- It is expected that 30 minutes of contact with a suitably qualified healthcare practitioner will generally be required.
- The intent is not for the review to be a ‘tick-box’ exercise; rather, there should be sufficient time to focus on particular unmet needs, guided by the priorities of the person with diabetes.

Complete annual care processes

- HbA_{1c}, particularly if glucose-lowering medication has changed or last HbA_{1c} was checked <6 months ago
- Blood pressure
- Cholesterol
- Foot checks
- Urinary ACR
- Serum creatinine
- Weight
- Smoking status
- Reinforce the need to attend retinal screening

Classification of diabetes type – is this type 2 diabetes?

- Consider features that do not fit with EOT2D, for example:
 - Relatively low BMI (although consider lower BMI thresholds in non-white ethnicities)
 - No features of insulin resistance or metabolic syndrome
 - No family history of type 2 diabetes
- Do not use age, BMI or ethnicity alone to exclude type 1 diabetes (see [NICE NG133](#)). Consider type 1 diabetes if one or more of:
 - Ketosis
 - Rapid weight loss
 - BMI <25 kg/m²
 - Personal and/or family history of autoimmune disease
- Consider MODY if strong family history of diabetes, especially if identified in multiple generations at young ages.
 - Bear in mind that a parent may have been misdiagnosed as having type 1 or type 2 diabetes.
 - See [national guidelines for eligibility for MODY testing](#).
- Review classification of diabetes type regularly, as features may develop that indicate an alternative diabetes subtype.
- If there is concern about misdiagnosis:
 - If type 1 diabetes is strongly suspected, urgently discuss with specialist care – do not delay starting treatment.

Contraception and preconception planning

- Review medications for glycaemia and cardiovascular risk (e.g. statins, ACE inhibitors, ARBs) – contraception should be used if taking potentially teratogenic drugs.
- If needed, commence insulin initiation in line with local pathways
- If actively trying for pregnancy, an HbA_{1c} target of <6.5 mmol/mol may be suggested
- Follow local pathways for preconception support/review
- Advise women with EOT2D to urgently notify their GP practice or diabetes team if they have a positive pregnancy test – refer urgently to Diabetes in Pregnancy team for antenatal clinic review within a week to reduce pregnancy risks.
- Consider all women of child-bearing potential who choose not to use contraception as likely to become pregnant.
 - For women who are trying for pregnancy or likely to become pregnant:
 - Prescribe folic acid 5 mg daily
 - Stop glucose-lowering drugs apart from metformin and insulin

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Current status: (2024) Review is under an extended access for people with early-onset type 2 diabetes. Diabetes & Primary Care 26, Early view published.



PCDS resource pack

PCDS Primary Care Diabetes Society Early-onset type 2 diabetes resources

About early-onset type 2 diabetes

	FutureNHS	Official resources from NHS England, including shared resources from various delivery sites (login required)	Link
	How to conduct an extended review for people with early-onset type 2 diabetes	A checklist of areas to cover in an extended review of type 2 diabetes in adults aged under 40 years	Link
	At a glance factsheet: Early-onset and youth-onset type 2 diabetes	A quick guide to the characteristics, implications and management of type 2 diabetes occurring in younger adults, children and adolescents	Link
	Early-onset type 2 diabetes: Clinical implications, diagnosis and management	Diagnosis, clinical implications and management of early-onset type 2 diabetes, with a particular focus on adults under 40	Link
	The NHS T2Day (Type 2 Diabetes in the Young) programme: Addressing unmet need, improving awareness and building evidence	Ching Bahai introduces the T2Day programme in England	Link
	Engaging with and optimising care for people under age 50 years with type 2 diabetes: The DiAST model of care	Embedding processes to engage with this hard-to-reach group leads to improved care process attainment	Link
Confirming the diagnosis			
	How to correctly diagnose and classify diabetes	A quick guide for primary care on ensuring that diabetes is diagnosed correctly and accurately	Link
	Exeter Diabetes App	The Exeter Diabetes App provides information on diagnosing and treating subtypes of diabetes, including MODY	Link

PCDS webinar – on demand

Early-onset type 2 diabetes

On demand

PCDS Primary Care Diabetes Society

About the programme

Originally broadcasted on 5th February 2024, this webinar and Q&A was created by the Primary Care Diabetes Society to support clinicians to deliver enhanced diabetes reviews for people with early-onset type 2 diabetes.

Early Onset Type 2 Diabetes

Early-onset type 2 diabetes: the case for change and the NHS T2DAY initiative

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Thank you!

