

Diabetes presentation **for nurses**

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Diabetes:

Diabetes is a chronic disease described as by abnormal high levels of blood glucose (blood sugar). These levels are called hyperglycaemia (Egan and Dinneen, 2019).

Common symptoms of diabetes are (see Figure 1):

- feeling thirsty all the time
- Increased urination
- feeling very tired
- losing weight without trying

Aetiology (causes):

The body's inability to produce enough insulin or use it effectively leads to high blood sugar. These causes differ by type:

Type 1 is autoimmune. This is caused by attacking insulin-producing cells (Quattrin, Mastrandrea and Walker, 2019).

Type 2 involves insulin resistance (linked to weight, inactivity, genetics, ethnicity, age);

Gestational occurs during pregnancy due to hormonal changes.

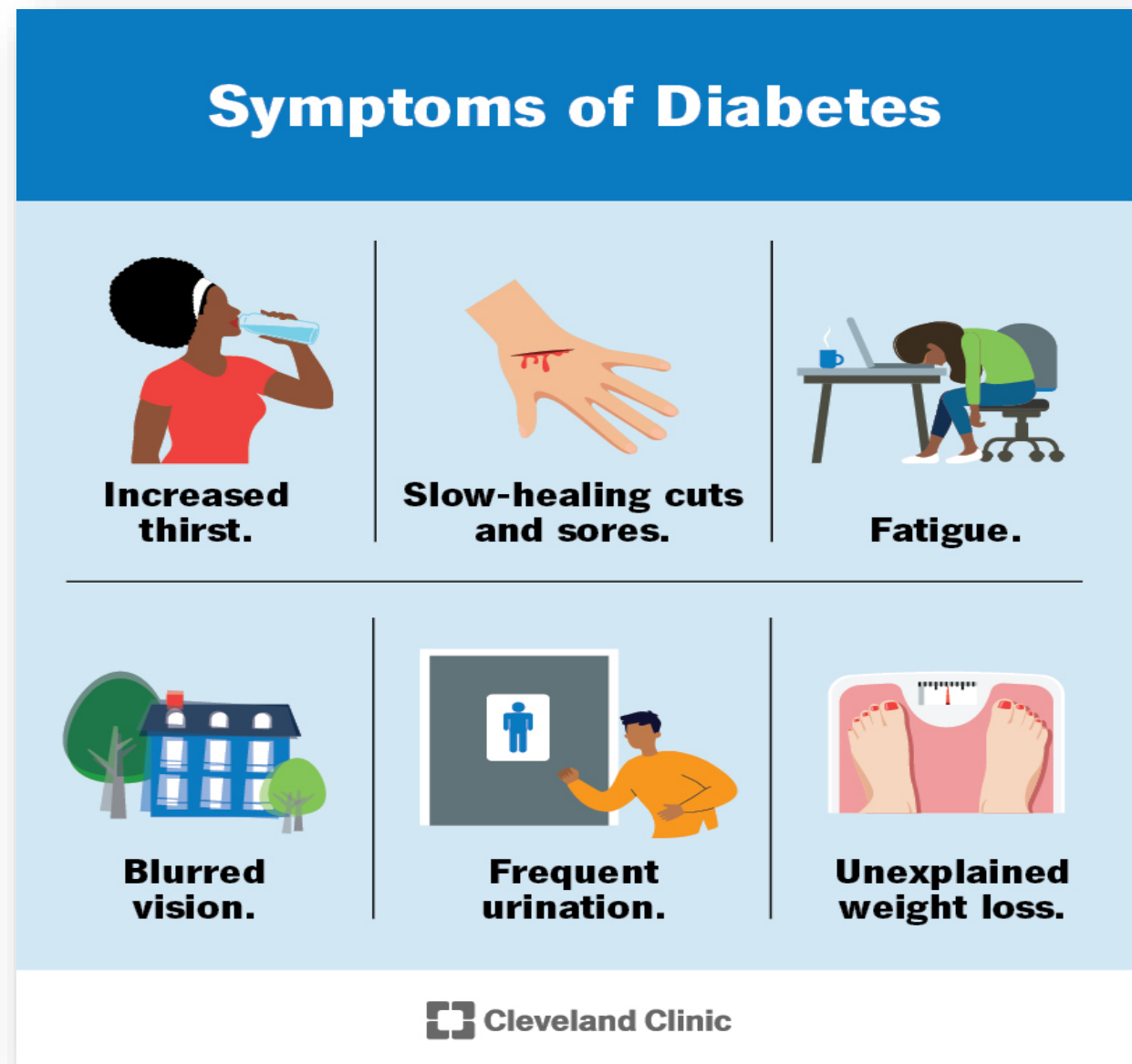


Figure 1: Diabetes symptoms. The symptoms of diabetes are similar in both types however the severity might differ (Cleveland Clinic, 2023).

Prevalence of diabetes in the UK and globally:

The UK has seen a rise in both type of diabetes.

Type 1 in the UK:

- Usually diagnosed in childhood or early adulthood.
- 5-10% of cases in the UK are of type 1 diabetes.
- This means 464,000 of the population have type 1 diabetes (NICE, 2025).

Type 2 in the UK:

- This is the most common type within UK population.
- It is estimated that 1.3 million cases went undiagnosed.
- Prevalence will increase as there are 549,000 people at risk (NHS England, 2024).

Global prevalence:

There are currently 800 million cases of diabetes globally.

This number is projected to increase to 1.31 billion by 2050 (The Lancet, 2023).

The projected number is more likely to be higher as it is estimated that 240 million cases went undiagnosed (Hossain, Al-Mamun and Islam, 2024).

Type 2 diabetes is the most common with 462 million cases (Xin *et al.*, 2025), while Type 1 diabetes has 9.50 million cases due to being an autoimmune disorder (Ogle *et al.*, 2025).

Type 2 diabetes has a higher prevalence globally as it is caused by daily lifestyle choices and social economic status of individuals.

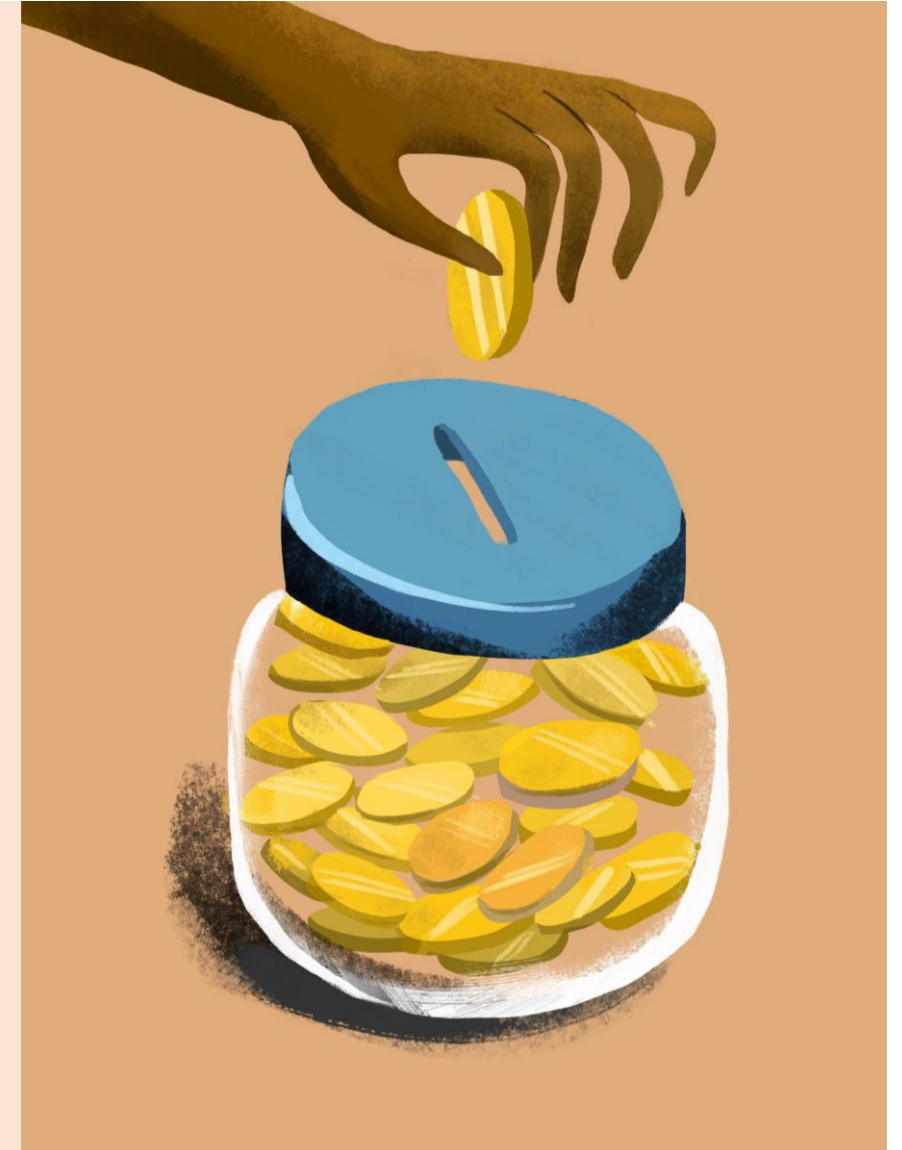
This is why middle/low-income countries have higher cases of the disease and more related complications.

Economic and social burden of diabetes in the UK:

Diabetes costs in 2021/22 in the UK were estimated to be at £10.7 billion. This increased from £9.8 billion in 2012 (Hex *et al.*, 2024). This increase is proportional to increase in the prevalence of diabetes. These costs were related to complications, diagnosis and treatments.

Complications cost the NHS £6.1 billion in 2021/22 which is more expensive than diagnosis and treatment which costed £4.4 billion. This shows that rising costs will increase the prices of services, medications and appointments. This will cause patients from deprived areas to have less access to assistance (Mallorie, 2024).

The economic burden leads to social burden. This is the impact of factors such as low income; lack of education and poor housing have on an individual's health (Özdemir and Özdemir, 2019).



Diagnosis and initial assessment of diabetes:

Diabetes is diagnosed when a patient starts showing diabetes symptoms, such as feeling thirsty and increased urination and fatigue.

The main tests to confirm a case are:

Oral Glucose Tolerance Test (OGTT): This aims to detect type 2 and prediabetes (Jagannathan *et al.*, 2020). In this test patients take a sugary drink after 8 hours of fasting to observe how the body responds to glucose.

Urinalysis (see Figure 3): A urine test aimed to analyse the concentration of glucose or ketone in urine using a dipstick (Ababayehu, 2023).

HbA1c test: This is the most accurate test used. This observes a patient's blood glucose concentration over the period of 3 months. A result of 6.5% or above indicates diabetes.

Potential Causes of High Sugar Levels in Urine

Hyperglycemia

Prediabetes, diabetes, or gestational diabetes

Diabetic medications like empagliflozin

Kidney disease

Genetic (Renal glycosuria)



Figure 2: Urinalysis illustration. In this test, a dipstick is put inside a patient's sample to detect if glucose concentration is high. This is analysed through the colours that will show on the dipstick after completing procedure (Braun, 2025).

Management of diabetes in the UK using frameworks:

The House of Care Model and Chronic Care Model are frameworks used in the UK to manage long-term conditions such as diabetes. These frameworks aim to improve patient care outcomes through different methods.

House of Care Model

- This model is UK focused.
- This framework allows co-operation between patients and professionals (Coulter *et al.*, 2016).
- This focuses on personalised care meaning that the patient and their preferences are in the centre of everything.
- This useful for diabetes as each patient will be treated following their unique plan discussed by patients as it affects everyone differently.
- The components of the model (see Figure 3) are the building blocks for a successful care outcome. These are followed by professionals.

Chronic Care Model

- This model is proactive as it anticipates disease management and prevention (Grudniewicz *et al.*, 2023).
- This model is used globally as it aims to change healthcare systems into proactive and more patient centred.
- Chronic Care Model promotes productive interactions between patients and healthcare professionals, however, previously it did not promote disease self-management (Pomey *et al.*, 2024).
- The benefit of this model of diabetic patients is that they will be able to have personalised care and it will prevent complications due to proactivity.

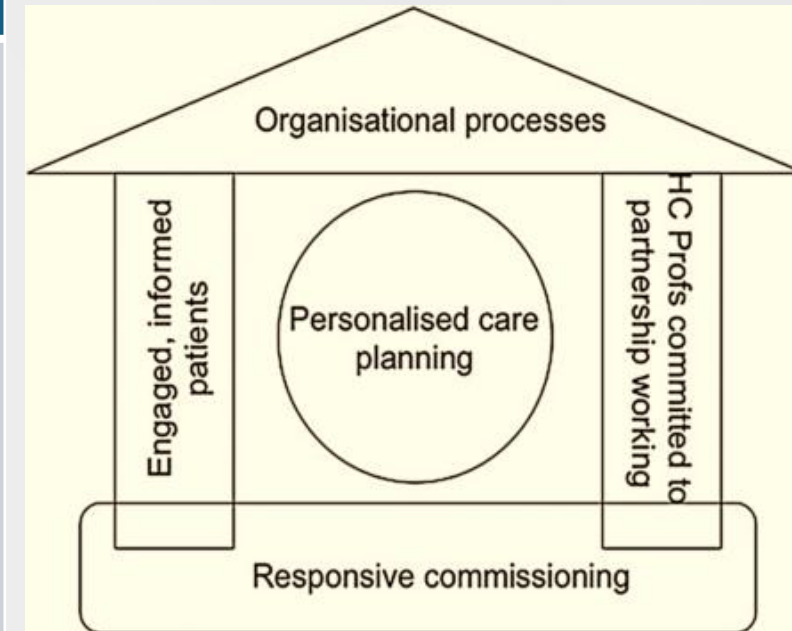


Figure 3: Components of House of Care Model.

These components are what build personalised care linked to long term condition. All of these are connected as the goal is to ensure that the patient is at the centre of the plan. For example, left wall represents engaged patients which is linked to the foundation which is responsive conditioning representing sources personalised to each patient (Batalden *et al.*, 2016).



Treatment options for diabetes available in the UK:

The NHS made different treatments available including insulin, metformin and support for lifestyle change.

Insulin: Insulin injections are mainly used for type 1 diabetes. This assists patients to lower their blood sugar levels by injecting insulin into fat tissues under the skin. The limitation of this is that it depends on patient's correct administration (Kalra *et al.*, 2023). To ensure effective treatment, patients must be trained by nurses (NHS, 2023).

Metformin: This is commonly used as treatment for type 2 diabetes to lower blood sugar levels (Dutta *et al.*, 2023). This is highly used due to being safe and affordable (Lv and Guo, 2020). Metformin is also utilised when a patient is at risk of developing type 2 diabetes to prevent the rise in prevalence.

Support for lifestyle change: The NHS created different programmes to promote improvement in lifestyles to prevent risks, prevent complications and manage diabetes.

The NHS Diabetes Programme is a programme that supports patients in person or digitally following patients' preferences. This promotes healthier eating and physical activity which can be tracked (NHS, no date).

The comorbidity for diabetes:

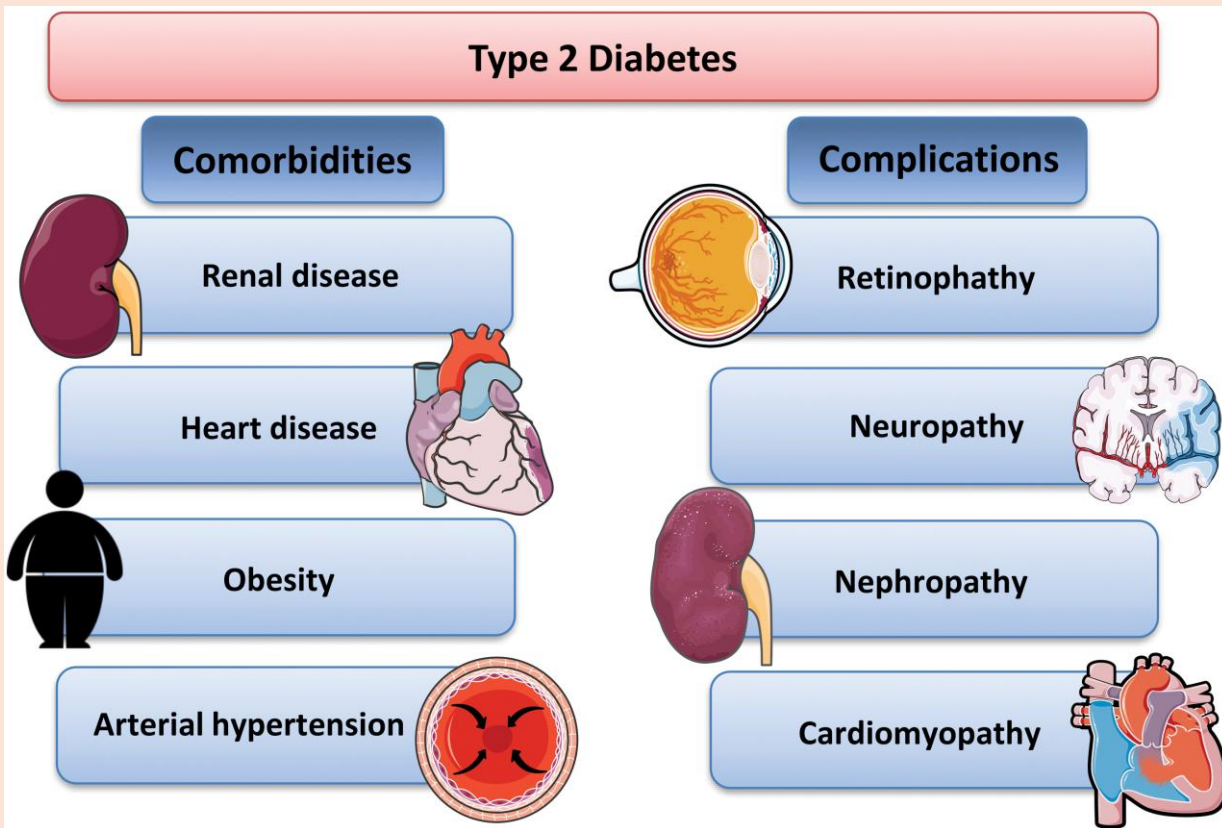


Figure 4: Type 2 diabetes comorbidities and complications. The comorbidities shown are once of the most common globally. Some comorbidities originate the complications shown or occur due the complications. Quality management of diabetes is critical to prevent both (Apostolova *et al.*, 2023)

Patients with type 2 diabetes mellitus are at risk of developing other conditions. The term comorbidity occurs when a patient with a disease develops a condition that will co-exist with the main pathology (Harrison *et al.*, 2021).

Comorbidity risk increase with poor disease management, age poor lifestyle and complications (see Figure 4).

Most common comorbidities include hypertension, lipid disorders, cardiovascular diseases, microvascular conditions and depression (Cicek *et al.*, 2021).

In England, between 44% to 95% of diabetic patients live with one or more comorbidities (Zghebi *et al.*, 2020).

In the UK it was found that the most common comorbidity is hypertension affecting 47.6% of patients in 2019 (Pearson-Stuttard *et al.*, 2022).

Other serous comorbidities:

-Tuberculosis: The risk of developing triples with diabetes (Bodke, Wagh and Kakar, 2023).

-Dementia: Having multiple comorbidities increase a patient's risk of dementia (Zheng *et al.*, 2022).

-Infections: This is 4 times more likely to occur in diabetic patients (Holt *et al.*, 2024).

-Amputation: This occurs due to diabetic foot which involves nerve damage and infection. There is a higher 40% risk in diabetic patients (Toledo *et al.*, 2016)

How Diabetes can be prevented?:

Type 1 diabetes cannot be prevented as it is an autoimmune disease, however, type 2 diabetes can be prevented through the following lifestyle changes:

Losing weight: Obesity increases the risk of diabetes due to increased body fat (Klein *et al.*, 2022). This can be achieved with the assistance of NHS Diabetes Prevention Programme which promotes physical activity and diet.

Increase physical activity: Exercising assists in the control of blood sugar levels (Syeda *et al.*, 2023). Aerobic exercises would be suitable as it increases insulin response (Kanaley *et al.*, 2022). These exercises include walks after meals, swimming, dancing or cycling.

Diet: Diet is one of the main factors for prevention. Patients at risk should decrease carbohydrate intake, increase vegetable intake and aim for decreased sugar in their meals (Prasad *et al.*, 2022).

Quitting tobacco: Smokers have an increased risk of 30-40% of developing diabetes (Maddatu, Anderson-Baucum and Evans-Molina, 2017).

Having quality sleep: Sleeping increases body's response to insulin. This a crucial step in preventing diabetes (Diabetes UK, 2026)



Skill, Values and behaviours evaluation in co-productive care:

Co-productive care is when professionals collaborate with patients or communities to reach a successful care outcome. This partnership also aims to improve their service designs by evaluating response towards treatments, plans and delivery of service. For this to happen certain skills, values and behaviours are needed to give personalised care to diabetic patients.

The Skills:

The skills required for this type of care include active listening, empathy, effective communication or sharing decision making.

These are some of the skills needed in co-productive care as these are the base to begin effective communication with patients.

To develop these skills professionals must be trained locally or by the NHS to learn to work with patients.

While working with diabetic patients this is important due to psychological implications caused by disease (Jones *et al.*, 2015).

Acknowledging values:

The main values that must be followed include inclusivity, communicate, creating choice and being human and personal (Materson and Laidlaw, 2024).

These values lead patients to have courage to build trust in the process as they would be working with professionals who view them as normal not as a sick person.

This is beneficial for diabetes co-productive care as they already face stigma which affects them daily. Values encourage patients to do better for them selves.

Behaviours:

Actions in healthcare demonstrate and promote co-productive care. These include:

Accountability: This ensures professionals know their role and responsibility leading to trust build and safety (Fukami, 2024).

Sharing power: This means that healthcare professionals are not making all decisions alone. They must allow patients to decide what is best for them.

Being inclusive: This ensures that communities can participate in care and prevention of disease. This can be applied to those at risk of diabetes as they are often forgotten.

Comprehensive model of personalised care and diabetes management:

The Comprehensive Model of Personalised Care provides patients with mental, physical or social support, power to make decisions towards their health (Johnson *et al.*, 2023).

The six evidence-based components of the model are:

Shared decision making: This involves decisions related to treatments based on patients' perspectives along professional expertise (NHS England, no date). Some diabetic patients might choose to not inject themselves with insulin due to fear however, professionals must be prepared to introduce other alternatives.

Personalised care and support planning: This component focuses on what is important to patient. For example, in a conversation a patient might show concern of developing diabetes comorbidities. Knowing these professionals must plan to ease the concern.

Enabling choice, including legal rights to choice : This is the giving of options to patients and supporting them to what is best for them using guidance and legislation.

Social prescribing and community-based support : This connects patients to non-medical approaches. This reduces pressure for the NHS and allows patients to involve themselves in a community. For example, diabetic patients might be referred to local walking groups as a form of exercise (NHS, 2025).

Supported self-management: Following this component, patients will have increased knowledge on their disease as they will be educated on it. Diabetic patients will develop autonomy in managing all disease factors.

Personal health budgets and integrated personal budgets: This is the combination of all funding to ensure all personalised needs are met. This is crucial for diabetes as it is expensive to treat (Gao *et al.*, 2021)

Recommendations:

- Based on the frameworks and models, patients with diabetes should be given more education about their condition so they can be able to monitor the disease themselves and suggest more efficient strategies for their care when discussing with healthcare professionals .
- Educating and training patients on the basics and mechanisms of diabetes will allow them to increase confidence and trust that their condition is manageable
- This approach will also decrease the risk of developing complications related to diabetes as patients will be more self-aware and alert about the lifestyle decisions they are taking.
- Overall, this will improve their self-management and will allow healthcare professionals to deliver effective services.

Conclusion:

- Diabetes is a chronic disease affecting deprived areas the most.
- This is due to economical and social burden which decrease their chance of having personalised care.
- Personalised care is based on House of Care Model or Chronic Care Model which promote successful care outcomes.
- These models include prevention and treatment methods so patients can decide what is suitable for their case.
- If inappropriate, they can develop the risk of complications which is something professionals must avoid.

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