Stabilisation of diabetes during the Covid pandemic

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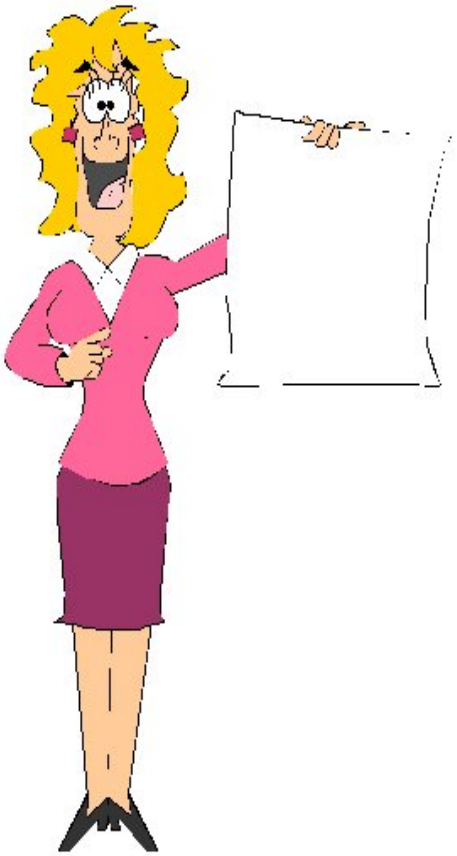
Nurse Prescribing; LSBU 25th May 2021

Aims and objectives



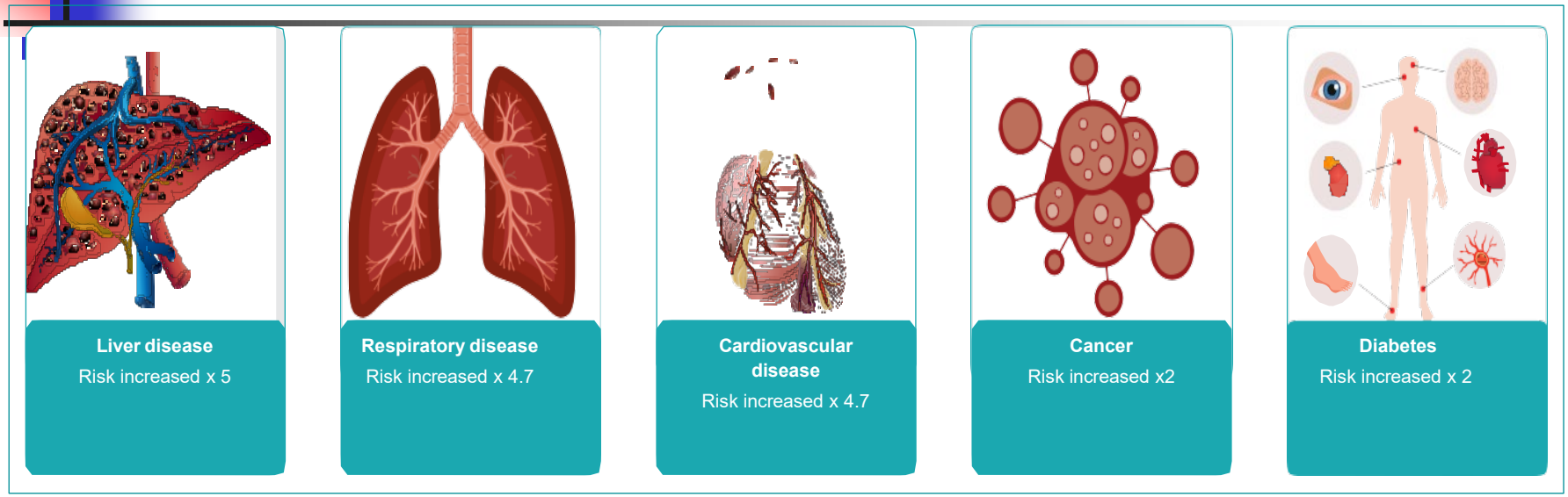
To be aware of:

- How every cloud has a silver lining
- How physical and mental health are interlinked.
- The importance of holistic care
- The importance of communicating effectively with the patient
- The value of working with relatives to obtain collateral history and to find out their tips and tricks in coping
- How nurses practicing at advanced level can improve patient care

The impact of mental & physical health

- People with mental health problems have a higher level of long term conditions than the general population
- Treatment for mental health conditions increases the risk of ill health and cardiometabolic problems
- Mental health impacts on the ability to manage long term conditions

How mental health affects physical health



- People with "severe mental illness" (SMI) e.g. schizophrenia & bipolar disorder that severely impair functional ability are more likely to have physical health problem and experience greater difficulty in managing these problems (Public Health England, 2018).

Diabetes and mental health

- Type 2 diabetes mellitus rates at least double in mental health patients.
- Diabetes Mellitus (DM) affects 7.4% of the population but 15% of those with SMI.
- People with DM occupy 14-30% of hospital beds nationally, have a 74% increased risk of acute admission and a 25% increased risk of re-admission

Case history

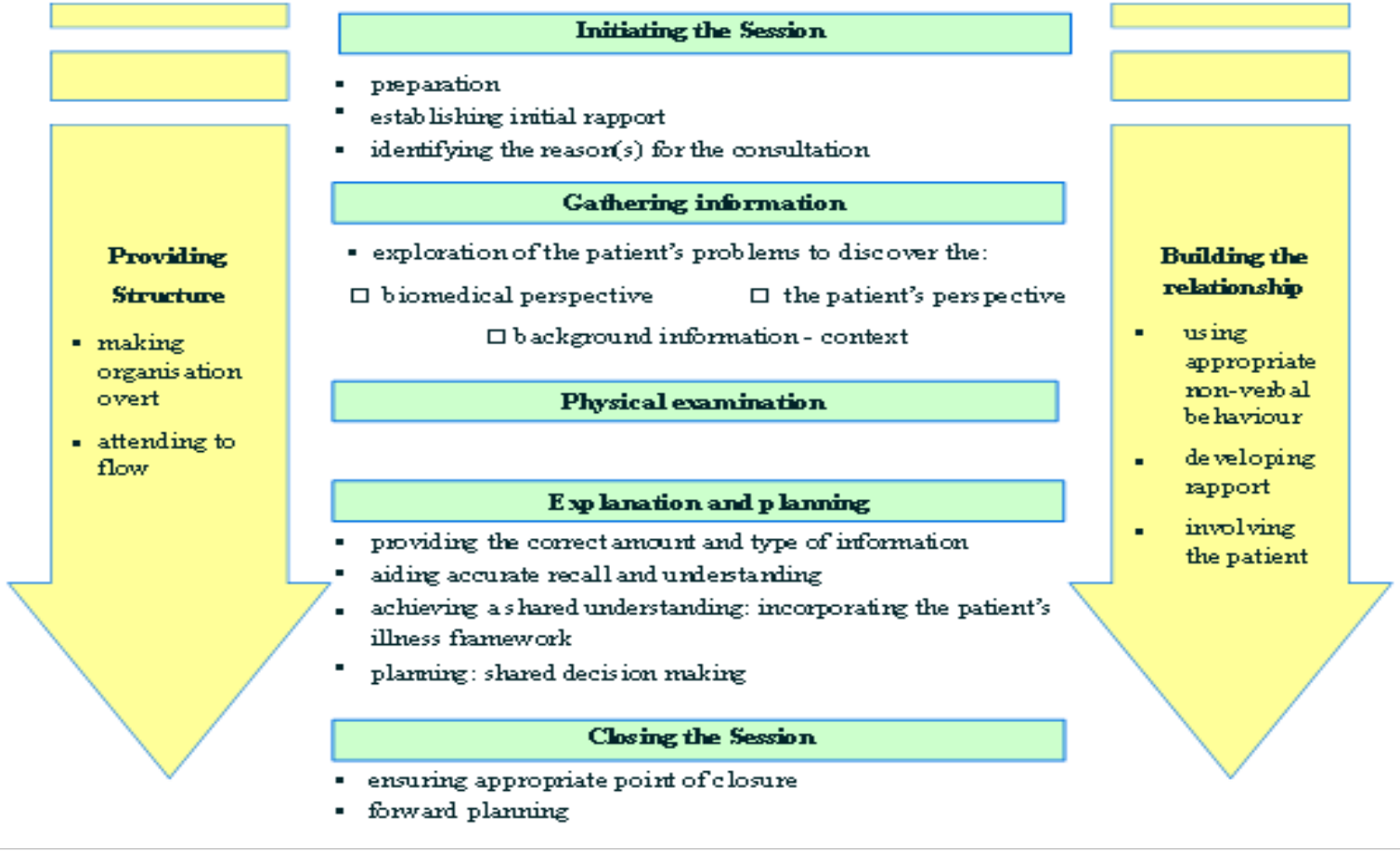
"Elizabeth Parker", known as "Lizzie" a 68 year old lady who has schizophrenia, mild learning disability and type two diabetes mellitus (DMT2). Miss Parker's, blood glucose level was 24mmol mmol/L on admission. Had been stabilised on twice daily insulin changed to once daily by GP.

Challenge was to stabilise on once daily insulin and avoid acute admission

Miss Parker clinical presentation

- Blood glucose level was 24mmol/L.
- Schizophrenia
- Compliant with medication

Calgary- Cambridge Model



Formulating the diagnosis

Challenges with history

Over 80 percent of diagnoses are made solely on the basis of history.

Lizzie was too mentally unwell to give a history and even when well her learning disability made it difficult for her to understand, remember and articulate her history.

Collateral history from sister and patient summary care record

Social history

- Lizzie was the youngest of four sisters; she lived with her parents who looked after her until their deaths. She now lives in the family home*.
- Lizzie has mild learning disability, never formally diagnosed, and never learnt to read or write. Her sister Anne lives nearby and normally sees Lizzie daily.
- Lizzie normally has assistance with personal and domestic activities of daily living.

Medical history

DMT2, mild stroke 2019, mild learning disability, elevated cholesterol, obesity and schizophrenia.

Presenting problems

“Tired, thirsty and passing lots of urine”

Reports that she’s been drinking lots of tea. She has been having two sugars in each cup.

Mentally unwell and admitted because of a deterioration in mental health.

Lizzie's perspective

- Reports she is. "*Not very well*", very thirsty and tired
- Patient reports that she hasn't felt well for a while and seems to be getting worse not better.
- Wants to get better so that she can go home and take lots of walks. Doesn't like being "stuck indoors".

Medication

- Aripiprazole 15mg AM
- Clonazepam 0.5mg BD
- Lithium Carbonate (Priadel) – 800mg
- Sodium valproate 500mg BD
- Atorvastatin 40mg AM
- Metformin M/R 2000mg AM
- Clopidogrel 75mg OM
- Insulin Glargine 40 units OM.

Diabetes treatment

- On her last admission, May 2019, blood glucose had been stabilised with Humilin M3 32 units AM and 22 units PM and metformin MR 2g AM.
- GP changed insulin to Glargine 40 units daily as community nurses were finding it difficult to give twice daily insulin due to the Covid 19 pandemic
- In the last few years HbA1c had been around 53-58. On admission was 73, indicating worsening control of blood glucose

Physical examination

- Lizzie was clean, tidy, warm and well perfused. She is able to walk long distances unaided.
- National Early Warning Score (NEWS) is 1 indicating low risk. Temperature:36.8, Pulse: 72, Respirations: 18, 02 saturations: 98%, BP 108/70mmhg, CGS15/15.
- HENT: Dentition good and dental hygiene appears good.
- Weight 79kg. BMI 30 blood glucose 26.5mmols/litre. It wasn't possible to check urine as nursing staff had asked Lizzie to let them know when she wanted to pass urine but she forgot. Chest is clear

Physical Examination (2)

Pedal pulses palpable. Cranial nerves intact. Central nervous system, slight right sided weakness since her stroke. Attempted to check peripheral nerves checked using 128Hz tuning fork, however Lizzie was unable to co-operate.

The abdomen was normal. It wasn't possible to auscultate the aortic and renal arteries due to central obesity. Iliac and femoral arteries auscultated no bruits were noted. Bowel sounds were heard in all four quadrants. No abnormalities noted.

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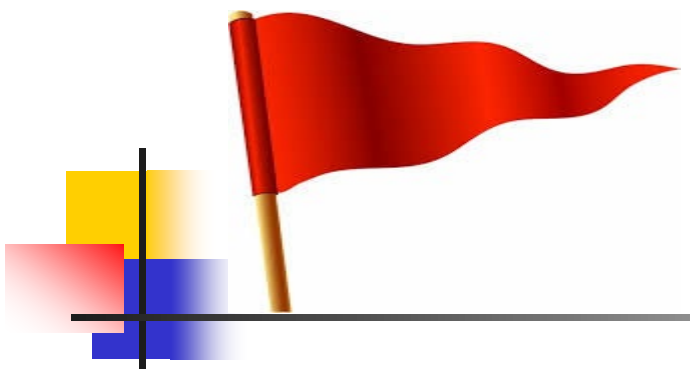
Physical Examination (3)

- Muscular skeletal system was grossly normal, with the exception of some weakness in the right arm and leg. Able to walk long distances.

- Integumentary system and lymphatic normal with no evidence of any fungal infection.

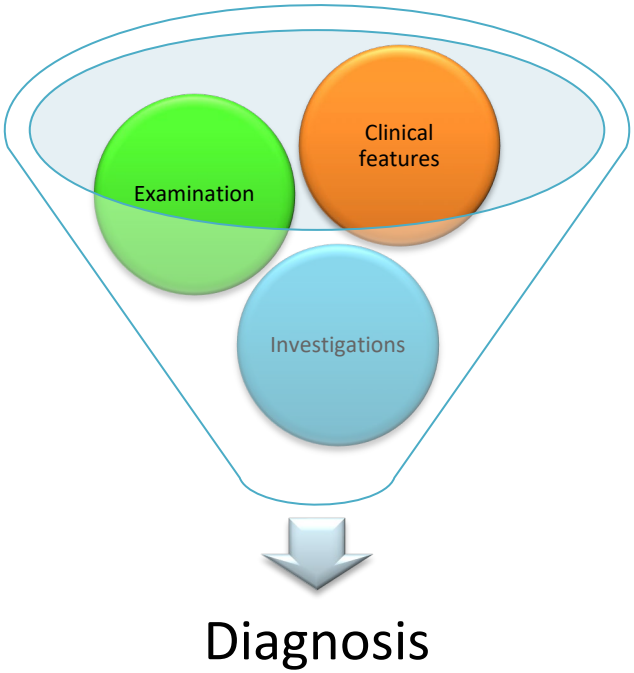


Red flags

- Risk of dehydration
- Poor diabetic control

Aims of interventions, to prevent dehydration, to avoid acute admission and to stabilise on once daily insulin.

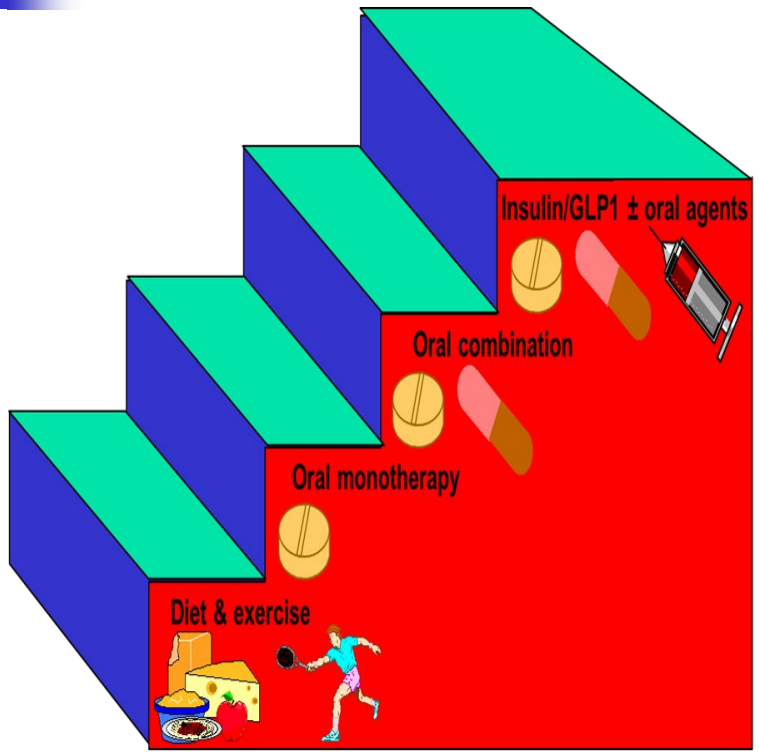
Diagnostic funnel



Differentials

- Hyperglycaemia secondary to reduced ability to produce insulin.

Evidence base



An individualised approach to diabetes care that is tailored to needs and circumstances, personal preferences, risks and ability to benefit from interventions (NICE, 2019).

Evidence base (2)

- Lizzie to follow dietary advice
- Monitor & maintain BP at 140/80mmhg in the absence of renal, ophthalmic or eye damage.
- HBA1C target 48% and checked 3-6 monthly until stable and then six monthly. Around 60% of people with DMT2 achieve an HB1Ac of below 59

Person centred care

- Limited understanding of diabetes
- Aware of the importance of a diet low in sugar
- Often ”forgot” and accepted lots of cake and sweets from other patients.
- Very sweet tooth
- Tea with two sugars

Person centred care (2)

Problem	Reasons	How this was addressed
Eating a healthy diet low in sugar	Lack of understanding about condition Lack of awareness about what a healthy diet is.	Reminding Lizzie that she has diabetes and shouldn't eat too much cake and too many sweets. Helping Lizzie to choose healthier options on the menu
Drinking tea with two sugars	Asking for sugar in her tea	Lizzie's sister Anne advised that Lizzie uses a granular sugar substitute. She dropped a jar of this off to the ward and it was labelled "Lizzie's special sugar". Ward staff used this to sweeten Lizzie's tea.

Treatment plan

- Commenced on dapagliflozin 10mg daily.
- Increased insulin glargine by 4 units to 44 units and reviewed this daily increasing incrementally.
- PRN insulin novorapid a short acting insulin if blood glucose was 20mmol/L or above. If blood glucose was 20mmol/L she was to have 4 units of insulin, if it was above 25mmol she was to have 6 units.

Dapagliflozin

- Dapagliflozin is a sodium glucose cotransporter 2 (SGLT2) inhibitor; other drugs in this class include empagliflozin and canagliflozin.
- SGLT2 enables the proximal renal tubules in the kidneys to reabsorb around 90% of glucose from tubular fluid. SGLT2 inhibitors block the reabsorption of glucose by the kidney, and increased the amount of urine excreted by the kidney. This reduces blood glucose levels in people with diabetes who have elevated blood glucose levels. SGLT2 inhibitors work independently of insulin and can be used in combination with insulin.

Benefits SGLT2 drugs

- Protect renal function and the cardiovascular system.
- Improve HbA1c and body weight when combined with insulin and decrease the required dose of insulin without increasing the risk of hypoglycaemia.
- Reduce major adverse cardiovascular events, such as stroke, myocardial infarction and cardiovascular death, as well as the number of hospital admissions for heart failure

As Lizzie had a stroke in 2019 medication that could potentially reduce risk factors was helpful.

Side effects SGLT2

- Candida infection, back pain, increased amount of urine passed, dizziness and a mild skin rash.
- Serious, life-threatening and fatal cases of diabetic ketoacidosis (DKA) are rare in type two diabetes but risks are much greater in type one diabetes. Fournier's gangrene (necrotising fasciitis of the genitalia or perineum) is a rare but serious and potentially life-threatening infection, has been associated with the use of SGLT2 inhibitors. They should be used with caution in people with cardiovascular disease and in older people because there is a risk of hypotension.
- Avoid initiation if eGFR less than 60 mL/minute/1.73 m2 as they are dependent on good renal function to act. Lizzie's EGFR was 73mL/min/1.73m2

Treatment plan & rationale (2)

- It is common practice to give short acting insulin when blood glucose is above 15mmol/L however older people should have less stringent blood glucose control to avoid the risks of hypoglycaemia. Hypoglycaemia is damaging to the ageing brain and can contribute to ill health and cognitive decline.

Titrating insulin

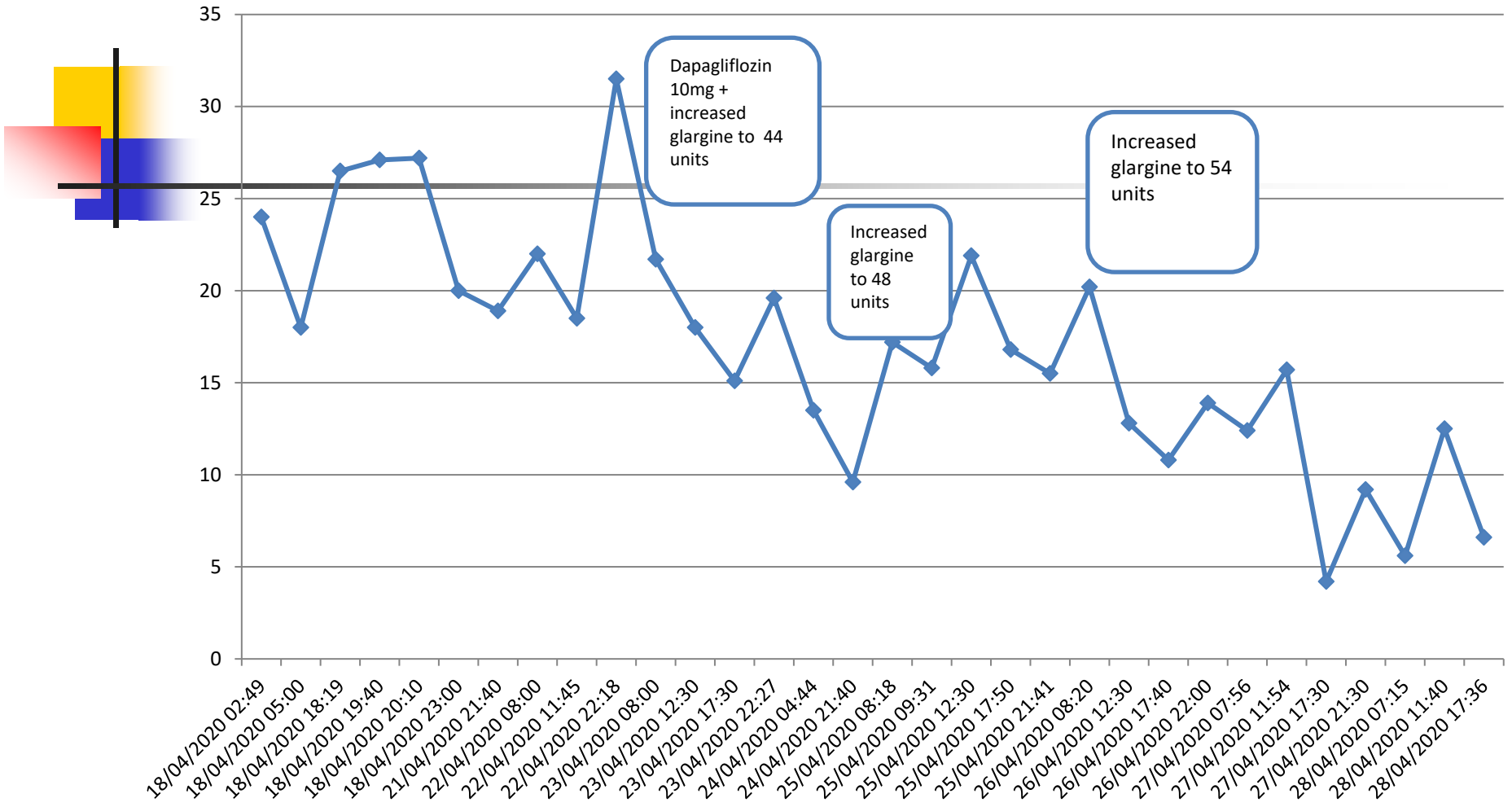
- Blood glucose persistently greater than 12 increase glargine by 2-4 units daily to achieve target range.
- Insulin use was to reduce osmotic symptoms safely & effectively
- Incremental increases to achieve target blood glucose is recommended by NICE (2016). She was encouraged to drink plenty of unsweetened fluid.

Patient progress

- Lizzie responded well to the Dapagliflozin 10mg daily and did not experience any adverse effects.
- She drank very well and as her endless cups of tea no longer had two sugars in them her blood glucose settled.
- Glargine increased incrementally and in less than a week her blood glucose was within range.

Patient progress (2)

- Stabilised on 54 units of glargine and had previously been settled on a split dose of 54 units of Humilin M3.
- My concerns that Lizzie's blood glucose would spike as she was no longer having an insulin that had short and long acting properties were unfounded.
- The addition of Dapagliflozin helped stabilise overall glycaemic control.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Dapagliflozin 10mg + increased glargine to 44 units
Increased glargine to 48 units
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The silver linings

- Accident and emergency admission, Covid risks and the stress of attendance avoided.
- Once daily insulin transformed Lizzie's life. She didn't have to wait in for the district nurse and could have a much richer life post Covid.

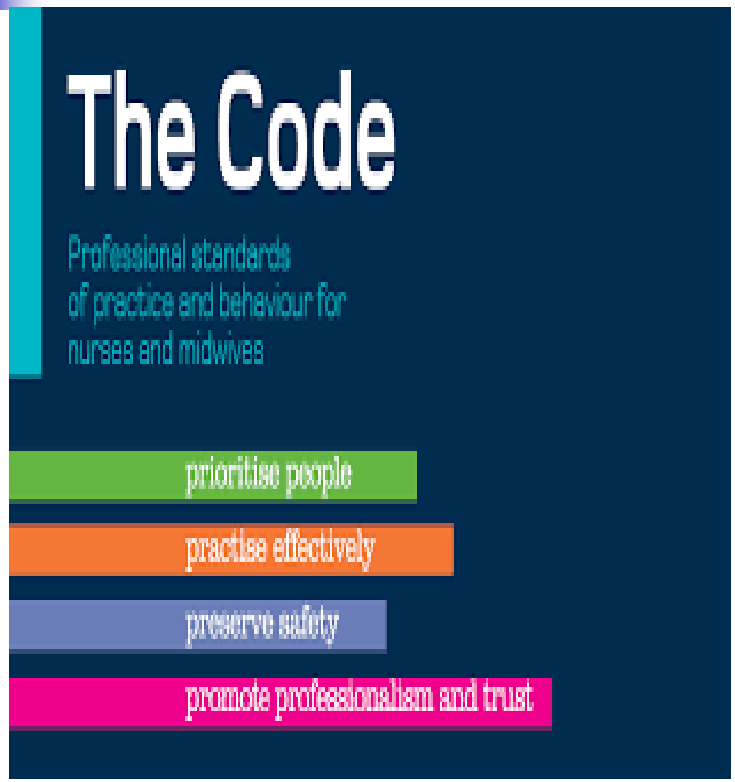
Outcomes

- Mental and physical health improved side by side and each impacted on the other
- Lizzie was able to return home with a plan to support her sister Annie to administer insulin.
- Lizzie is looking forward to a richer social life post pandemic
- Burden of diabetes has been reduced and SGLT2 will aid weight loss and reduce risk factors

Reflection

- How working together across acute and mental health improves the care of patients
- Importance of understanding the difficulties an individual faces.
- Importance of working with family, patient and staff to improve care and transform a person's life
- Supporting staff who were nervous of managing Lizzie's diabetes and being available to them.

Scope of practice



- The nurse is required to work within the limits of competence and make a timely and appropriate referral to another practitioner when it is in the best interests of the individual requiring care and treatment

Don’t ever forget the patient

Nursing is rooted from the needs of humanity and is founded on the ideal of service. And that, “the nurse is temporarily the consciousness of the unconscious, the love of life for the suicidal, the leg of the amputee, the eyes of the newly blind, a means of locomotion for the infant, knowledge and confidence for the mother and the mouthpiece for those too weak or withdrawn to speak”

Take home messages

- In an ideal world patients would have one symptom that was easily recognised and treated
- In the real world symptoms can have multiple causes and we need to be skilful in drawing out and addressing these.
- A team approach is essential
- All care and treatment should be centred on the hopes and aspirations of the patient
- Clinicians should be alert to complications, work within their sphere of competency and refer appropriately.

The value of advanced practice

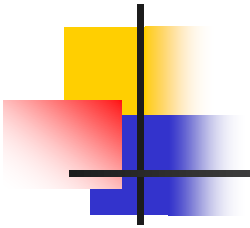
Nurses practicing at advanced level:

- Raise the bar for all nurses
- Are able to see, diagnose and treat
- Are registered, educated and accountable
- Reduce pressures in acute and primary care
- Improve quality of care

Our challenge is to have our skills recognised and valued at all levels from secretary of state to the patient

Key points

- Adults may have mental and physical health conditions
- Mental health conditions can make it more difficult to obtain a history and determine diagnosis
- The clinician should whenever possible obtain collateral history
- It is important to determine differential diagnosis and to follow guidelines to determine diagnosis
- Diagnosing and treating adults with mental and physical problems requires a team approach.



Thank you for listening

Any questions?

If you require a copy of the paper this is based on with references get in touch

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