Rapid implementation of a Virtual Inpatient Diabetes service (VIDs) during the Covid-19 pandemic

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Background

Maintaining patient safety for inpatients with diabetes is a priority. The Covid-19 pandemic has introduced significant challenges for inpatient teams and their models of working. Diabetes teams have faced re-deployment and new ways of working have been required to maintain safe care. With approx 1 in 5 Covid-19 admissions known to have diabetes, and the effects of both dexamethasone and Covid-19 on glucose metabolism, maintaining an effective inpatient diabetes service has been a priority.

In response to the covid-19 pandemic, UHL rapidly implemented a daily VIDs. All reviews were undertaken virtually between 23/03/20-03/08/20. Inpatients with diabetes (inc. covid-19 positive) were reviewed daily.

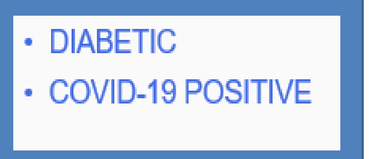
Aims

- review all patients with diabetes +/-covid-19
- minimise exposure of staff to covid-19
- preserve PPE for frontline staff
- evidence safe levels of care

Methods

Patients were identified from an electronic patient handover system (NerveCentre). Both Covid-19 status and presence of diabetes are recorded on the system and live lists are accessible for each patient group

Where possible all patients with diabetes were reviewed daily however patients with Covid-19, CBG <3.0 or >25mmol/l and those on the daily high risk medications list were prioritised. All Covid-19 patients were reviewed by a Consultant.



Blood Sugar	10.4 mmol/l	10.7 mmol/l	
Blood Ketones		4.2 mmol/l	2.2 mmol/l
Bowels Adult			

Access to all NerveCentre and eObs data, lab results and EPMA were used for reviews. Plan for ward teams recorded in handover window.

- 09/11/20 Inpatient diabetes team review (virtual) for attention of ward team. CBG running high and requiring prn novorapid. 2 further doses of dexamethasone prescribed. I recommend giving the novorapid regularly with each meal while on dexamethasone (4 units with each meal). When dexamethasone stops then reduce and stop the novorapid. If CBG remain elevated then refer to diabetes team. Dr Kath Higgins (Cons)

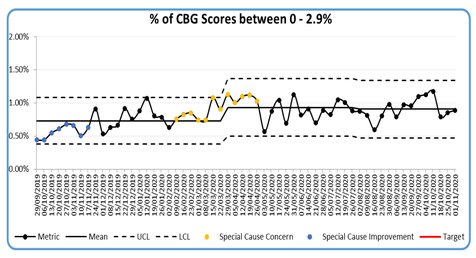
Results

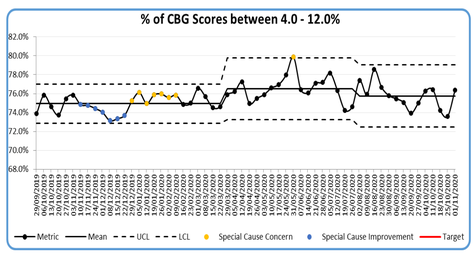
During the pandemic daily bed occupancy for adults with diabetes fell (see table 1). Admissions for patients with diabetes and covid-19 peaked in April 2020 (see table 2)

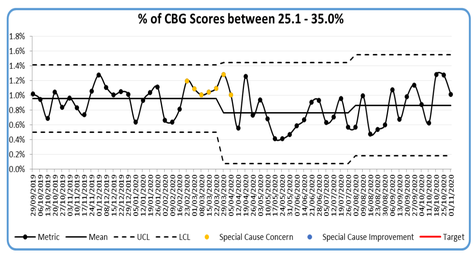
Month (2020)	Mar	Apr	May	June	July	Aug
Average daily bed occupancy (Diabetes)	303	239	279	305	292	304

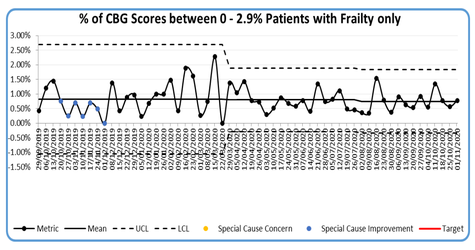
Month (2020)	Admissions/ month coded with diabetes and Covid-19
Mar	93
Apr	249
May	166
June	80
July	38
Aug	17

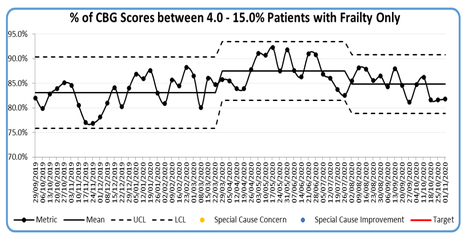
Results - % of total CBG in given ranges for all patients (chart 1-3) and patients with clinical frailty score >5 (chart 4-6)

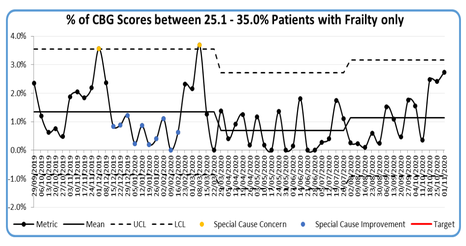












	% total CBG in range given For all patients with diabetes		
CBG range	Pre - VIDs	During VIDs	Post - VIDs
<2.9mmol/l	0.7	0.9	0.9
4-12mmol/l	75.0	76.5	75.7
>25.1mmol/l	1.0	0.8	0.9

	% total CBG in range given For patients with diabetes and CFS =or>5		
CBG range	Pre - VIDs	During VIDs	Post - VIDs
<2.9mmol/l	0.8	0.8	0.7
4-15mmol/l	83.1	87.5	84.8
>25.1mmol/l	1.3	0.7	1.1

NaDia Harms – no rise in hypo harms during VIDs. Two cases of in-hospital DKA were identified by VIDs team which had not been reported– one case: covid-19 positive patient with type 2 diabetes and SGLT2i.

LOS – for patients with diabetes mean LOS did not increase whilst VIDs was in place (mean LOS March – Aug 2020 = 6.2 days v mean LOS 2019/20 = 6.2 days)

NaDia Harm	Jan 2020		Feb 2020	Mar 2020	April 2020	May 2020	June 2020	July 2020	Aug 2020
Hypo	5	5	2	2	3	4	3	1	2
DKA	0	0	1	1	0	0	1	0	0
HHS	0	0	0	0	0	1	0	0	0
Foot ulcer (unavoidable)	0	0	1 (0)	1 (0)	0 (0)	2 (1)	0	0	0

Discussion – Before March 2020 our inpatient diabetes service was a peripatetic service only. Introduction of a fully virtual inpatient diabetes service was not associated with detrimental outcomes in terms of in-hospital harms or LOS. A small increase in % CBG <2.9mmol/l (all patients data) was not associated with a rise in NaDia hypo harms. It was essential to evidence that this rapid change in delivery of care was safe. From Aug 2020 our inpatient diabetes service has continued with a dual model of both virtual and face to face reviews. If we need to reinstate a fully virtual service again during this second covid-19 wave we can be reassured re: safety. The use of technology to support patient care is developing at pace and during the past weeks we have introduced a daily electronic list of patients treated with dexamethasone and a blood ketone field in eObs. Improvements in electronic prescribing of insulin are in pilot which will allow live ward level dashboards of patient treated with insulin and our aim will be to integrate networked CBG and ketone readings into the dashboards. The challenge will be using this technology to identify the highest risk patients, triage reviews and most efficiently use the available workforce to deliver the highest quality service.

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