

This guidance is provided to assist with your preparation for your CT scan. If you feel unclear about how to proceed with your medication after reading this information, please contact your diabetes specialist nurse or general practitioner for personalized advice. If you have any queries about the test please contact the Radiology Department on 01225 825989.

Guidance for Diabetic Persons having (reduced) bowel preparation for a CT Colonogram

Information for patients

Royal United Hospitals Bath NHS Foundation Trust
Combe Park, Bath BA1 3NG
01225 428331 www.ruh.nhs.uk

Please contact the Patient Advice and Liaison Service (PALS) if you require this leaflet in a different format, or would like to feedback your experience of the hospital.

Email ruh-tr.pals@nhs.net or telephone 01225 825656 / 826319.



Do I need to contact the Radiology Department in advance?

In preparing for your scan it is important to inform the radiology department that you have diabetes; you may have already discussed this with the hospital doctor in clinic. If you are not sure we know about your diabetes phone 01225 825989 and speak to one of the radiographers.

We aim to scan people with diabetes early on in the day to avoid prolonged fasting.

It is important all diabetics have had their kidney function checked with a blood test within three months of their bowel preparation. If you have **heart failure** or **kidney failure** this should be discussed with our department, as we may need to adjust the recommended fluid intake, or provide your laxative bowel preparation as an inpatient.

If you have **reduced kidney function and take metformin** the radiographer may ask you to stop the metformin for 48 hours and have your kidney function rechecked before restarting it.

This leaflet is for people with type 1 diabetes and type 2 diabetes who are on medication for their condition. If you have type 2 diabetes managed by diet alone you do not need to read this leaflet.

Diabetes Treatments

What type of medication am I on?

- **Oral diabetes medication (tablets):** Metformin, Pioglitazone, Acarbose, Repaglinide, Nateglinide
 - **Sulphonylureas:** Gliclazide, Glibenclamide, Glipizide, Glimepiride,
 - **DPP-IV inhibitors:** Sitagliptin, Saxagliptin, Vildagliptin, Linagliptin,
 - **SGLT2 Inhibitors:** Dapagliflozin, Empagliflozin, Canagliflozin
- **Injected diabetes medications:**
 - **Long acting insulin:** Lantus/ Glargine, Levemir/ Detemir
 - **Intermediate acting insulin:** Insulatard, Humulin I, Insuman basal, animal Isophane
 - **Short acting insulin:** Novorapid, Humalog, Apidra, Actrapid, Humulin S, Insuman Rapid, animal neutral
 - **Mixed insulin:** Novomix 30, Humulin M3, Humalog Mix 25/50, Insuman Comb 15/25/50.
 - **Other injectable treatment (GLP-1):** Exenatide (Byetta), Liraglutide (Victoza), Lixisenatide (Lyxumia), Bydureon

If you are unsure which type of insulin or medications you take please contact your diabetes specialist nurse, practice nurse or general practitioner for personalised advice.

Bowel Preparations

Faecal Tagging Agent: Gastrografin

You should have received a bottle of Gastrografin to take as detailed below.

Do not take the Gastrografin if you have:

- Previously had an allergic reaction to intravenous contrast (x-ray dye injection)
- Difficulty in swallowing
- An overactive thyroid or Grave's Disease

If any of these apply please contact us on 01225 825989

Gastrografin is a strong laxative and will cause diarrhoea. It is advisable to stay within easy reach of a toilet once you have started taking it.

For female patients: if there is any chance of being pregnant please notify the department. If you take oral contraceptives the diarrhoea may reduce their effectiveness. Continue taking the oral contraceptives but use other precautions for the remainder of that cycle.

Three days before

Stop taking iron tablets, bran or ispaghula (i.e. Fybogel® or Isogel®)

Two days before

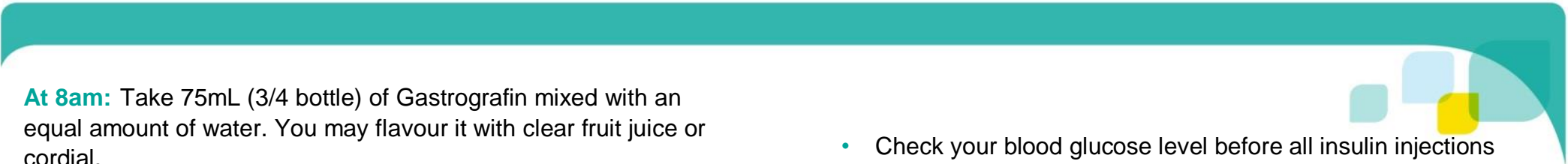
- For two days before your examination you should have only light meals and avoid red meat, fruit or vegetables in any form. A **dietary sheet** has been provided in addition to the advice below.
- You may eat eggs, cheese, fish, white meat, pasta or rice.
- If you have **type 2 diabetes and take insulin**, and this diet reflects a significant decrease in your usual food intake you may need to reduce your insulin doses. You can discuss this with your diabetes specialist nurse or general practitioner for personalised advice.

If you have type 1 diabetes and are carbohydrate counting you can continue this. Otherwise you may need to reduce your dose of short-acting insulin.

This can be discussed with your diabetes specialist nurse or general practitioner for personalised advice.

The day before

You may eat breakfast before your first dose of tagging agent, sticking to the dietary restrictions detailed on your **diet sheet**.



At 8am: Take 75mL (3/4 bottle) of Gastrografin mixed with an equal amount of water. You may flavour it with clear fruit juice or cordial.

From now on you may only take **clear fluids** and **no solid food** at all, except boiled sweets and peppermints. Drink at least ¼ pint (150mL) of fluid every hour on the hour during the daytime.

- Take additional sugary clear fluids (drinks such as Lucozade or sugar-containing squash, cordial or juice) to maintain your blood glucose levels if necessary

At 4pm: Take the remaining 25mL (all remaining contents of the bottle) of Gastrografin as above.

After the second Gastrografin dose, start to drink one half pint (250mL) of clear fluids each hour during normal waking hours. The more fluids that you drink the better the bowel preparation works.

Advice may change if you have heart failure- please let us know if this is the case on 01225 825989.

How do I adjust my medications the day before a CT Colonogram?

- Continue to take Metformin and pioglitazone as usual
- Do not take any other ORAL diabetes medications (see list at start)
- Continue to take GLP-1 injections (see list) as usual

- Check your blood glucose level before all insulin injections
- Long-acting and intermediate-acting insulin doses do not need adjustment
- If you have type 2 diabetes, halve the usual dose of short or mixed insulin
- If you have type 1 diabetes and are carbohydrate counting you can continue this. Otherwise, halve the usual dose of short-acting or mixed insulin

On the day of the scan

Continue liquid diet with clear fluids such as black tea or coffee, sugar-free squash, clear soups or water up to 2 hours before your appointment time.

When you travel to and from the hospital for your scan carry some glucose tablets or a sugary drink.

You may wish to bring a dressing gown or coat with you.

Please do not bring items of jewellery as they may need to be removed prior to the CT scan.

What to do if you have a 'hypo'

If you have any symptoms of a low blood sugar such as sweating, dizziness, blurred vision or shaking please test your blood sugar if you are able to do so.

> If it is less than 4mmol/L (or if you are not able to check your blood sugar), take 4 glucose tablets or 100mL of the sugary drink

(half a standard sized can of non-diet cola) or 4-5 jelly babies.
Please tell staff at the hospital that you have done this because it is possible that your scan may have to be rearranged.

Remember to bring with you to hospital:

- Glucose tablets or a sugary drink
- Blood glucose testing equipment (if you usually monitor your blood glucose)
- The tablets or injections you usually take for your diabetes, and a prescription if available

The following tables will guide you on how to adjust your diabetes medications **on the day** of your scan.

If you are able to check your blood sugar you should monitor this closely e.g. on waking, on arrival at the hospital and after the scan.



What to do with your oral diabetes medications

Tablets	If your scan is in the morning	If your scan is in the afternoon
Metformin	Omit your morning dose. If only taken at this time, take morning dose with lunch	Omit morning and lunchtime dose
Sulphonylureas (see list at start e.g. Gliclazide)	Omit your morning dose. If only taken at this time, take morning dose with lunch	Omit morning dose
Pioglitazone	Delay until after the scan	Delay until after the scan
Acarbose	Omit your morning dose	Omit your morning and lunchtime dose. Instead take one dose with evening meal.
Meglitinide, repaglinide or nateglinide	Omit your morning dose	Omit your morning and lunchtime dose. Instead take one dose with evening meal.
DPP-IV inhibitors (see list at start e.g. sitagliptin, linagliptin)	Omit your morning dose. If only taken at this time, take morning dose with lunch	Omit morning dose. If only taken at this time, take morning dose with lunch
SGLT2 inhibitors (see list at start) e.g. dapagliflozin	Delay until after the scan	Delay until after the scan

What to do with your injected medications



Injections	If your scan is in the morning	If your scan is in the afternoon
Once daily insulin ONLY (type 2 diabetes) e.g. long and intermediate acting	Continue your usual dose *see below	Halve your normal dose if taken in the morning
Twice daily MIXED insulin e.g. Novomix 30, Humulin M3, Humalog 25/50 etc.	Halve your usual morning dose. Resume normal regime with next meal	Halve your usual morning dose. Resume normal regime with next meal
Twice daily – separate injections of short acting AND intermediate acting insulin e.g. actrapid, novorapid, Humulin S etc. Insulatard, Humulin I etc.	Calculate the total dose of both morning insulins and give half as intermediate acting only in the morning. Leave the evening dose unchanged.	Calculate the total dose of both morning insulins and give half as intermediate acting only in the morning. Leave the evening dose unchanged.
Three times daily MIXED insulin e.g. Novomix 30, Humulin M3, Humalog 25/50 etc.	Halve your usual morning dose. If you miss lunch do not take your lunchtime dose. Resume your normal regime with your next meal	Halve your usual morning dose. Omit lunchtime dose. Resume your normal regime with your next meal

Injections	If your scan is in the morning	If your scan is in the afternoon
Basal bolus regimens: once or twice daily long acting insulin plus short acting insulin at meal times (see list at start)	Basal/ long acting: continue your normal dose *see below Bolus/ Short acting: Omit your morning dose. Resume normal regime with your next meal	Basal: continue your normal dose *see below Bolus: Omit your morning and lunchtime doses. Resume normal regime with your next meal
Exenatide (Byetta)	Omit your morning dose.	Omit morning dose.
Lyraglutide (Victosa), Lixisenatide (Lyxumia)	Delay until after the scan	Delay until after the scan
Bydureon	Delay by one day if due	Delay by one day if due

* If you normally graze through the day or normally eat snacks without taking extra insulin you should reduce this insulin dose by one third (e.g. if on 30 units normally then reduce to 20 units).

What if I have an insulin pump?

- Maintain your usual basal rate and only give boluses if you need to correct for a significantly elevated reading.

- If you have any concerns about hypoglycaemia you can use a temporary basal rate that is 80% of your usual rate.
- You can contact your diabetes specialist nurse, practice nurse or general practitioner for personalized advice.

After the scan

How do I manage my diabetes after the scan?

- After your scan you can drink when you feel able to.
- Once you are eating and drinking you should resume taking your diabetes medications as normal.
- Your blood glucose levels may be higher than usual for a day or so.
- When you get home, if you feel nauseated or vomit and are unable to eat, please refer to the 'What should I do if I am unwell?' section below.
- If you do not improve quickly and usually attend the hospital for diabetes care, please telephone the Diabetes Team on 01225 824198 during office hours Monday to Friday. If they do not answer leave a message and contact your General Practice.
- Outside of office hours please contact your GP or out of hours service.
- If you usually see your GP about your diabetes please phone your General Practice.

What should I do if I am unwell?

- NEVER stop taking your insulin or tablets – illness usually increases your body's need for insulin
- TEST your blood glucose level every 2 hours, day and night
- TEST your urine for ketones every time you go to the toilet or your blood ketones every 2 hours if you have type 1 diabetes and have the appropriate equipment
- DRINK at least 100 mL water/ sugar free fluid every hour – you must drink at least 2.5 litres (approx. 5 pints) per day during illness
- REST and avoid strenuous exercise as this may increase your blood glucose level during illness
- EAT as normally as you can. If you cannot eat or if you have a smaller appetite than normal, replace solid food during illness with one of the following:
 - 400 mL milk
 - 200 mL carton fruit juice
 - 150-200 mL non-diet fizzy drink
 - 1 scoop ice cream

When should you call the Diabetes Specialist Nurses or your GP?

- Continuous diarrhoea and vomiting, and/or high fever
- Unable to keep down food for 4 hours or more

- High blood glucose (above 15 mmol/L) with symptoms of illness- you may need more insulin
- Ketones in type 1 diabetes at ++2 or +++3 in your urine or above 1.5 mmol/L blood ketones- you may need more insulin. In this case, contact the person who normally looks after your diabetes IMMEDIATELY
- Outside normal working hours consult the local out of hours service or go to your local hospital Emergency Department.

Who should I call if I have questions about my scan?

You are welcome to discuss your questions with our Radiology Department during normal working hours; phone 01225 825989 and ask to speak to a radiographer.

Who should I call if I have diabetes related questions?

If you usually attend the hospital for diabetes care and have diabetes related questions, please telephone your diabetes specialist nurse or the Diabetes Team at the RUH on 01225 824198 during office hours Monday to Friday.

If you usually attend the general practitioner for diabetes care and have diabetes related questions, please telephone your general practitioner.

Who should I call if I have urgent questions outside normal working hours or illness related questions?

Consult the local out of hours GP service for urgent queries or illness or go to your local hospital Emergency Department.

Am I prepared for my CT Colonogram?

- Write down your medication plan in the table below
- If you are unclear you can contact your diabetes specialist nurse, practice nurse, the radiology department or general practitioner for personalized advice.
- If you are not sure we know about your diabetes, heart failure or kidney failure phone 01225 825989

Date	Medication regime
2 days before: / /	
1 day before: / /	
Scan: / /	
Day after scan: / /	