



TreatGx

User Manual

TreatGx is a trusted and widely used Clinical Decision Support System (CDSS) that combines pharmacogenomic (PGx) data with a patient's health information to provide personalized, evidence-based treatment recommendations. At the point of care, TreatGx enables providers to efficiently interpret complex medical data, identifying suitable medications and dosages for each patient.

This condition-focused CDSS is powered by evidence-based algorithms developed by clinicians using the latest treatment guidelines, PGx implementation standards, clinical research, and medication safety data. TreatGx can function effectively with or without PGx results, helping to determine when PGx data may influence prescribing decisions and medication choices.

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Accessing TreatGx

1. Go to the sign in page: [USA Log In](#) or [Canada Log In](#)

2. Select the Sign In button

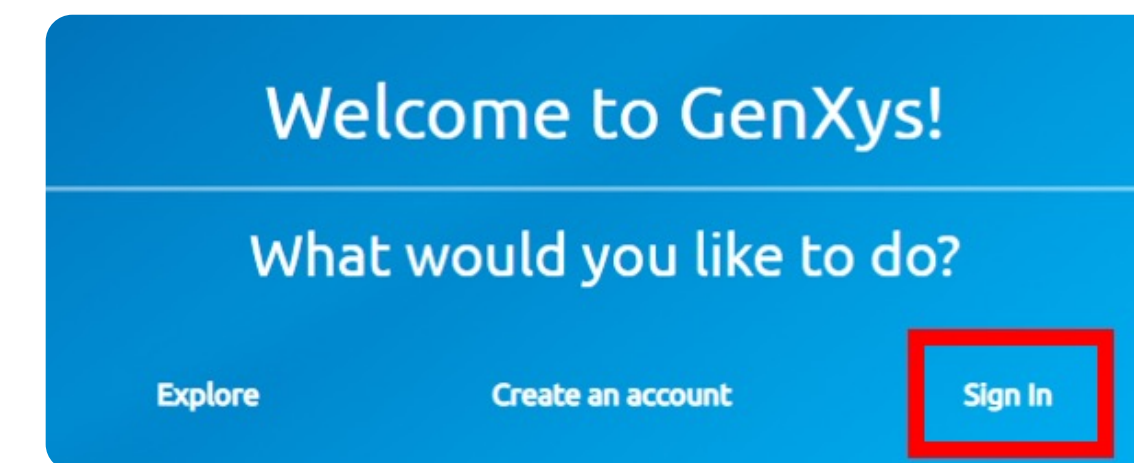
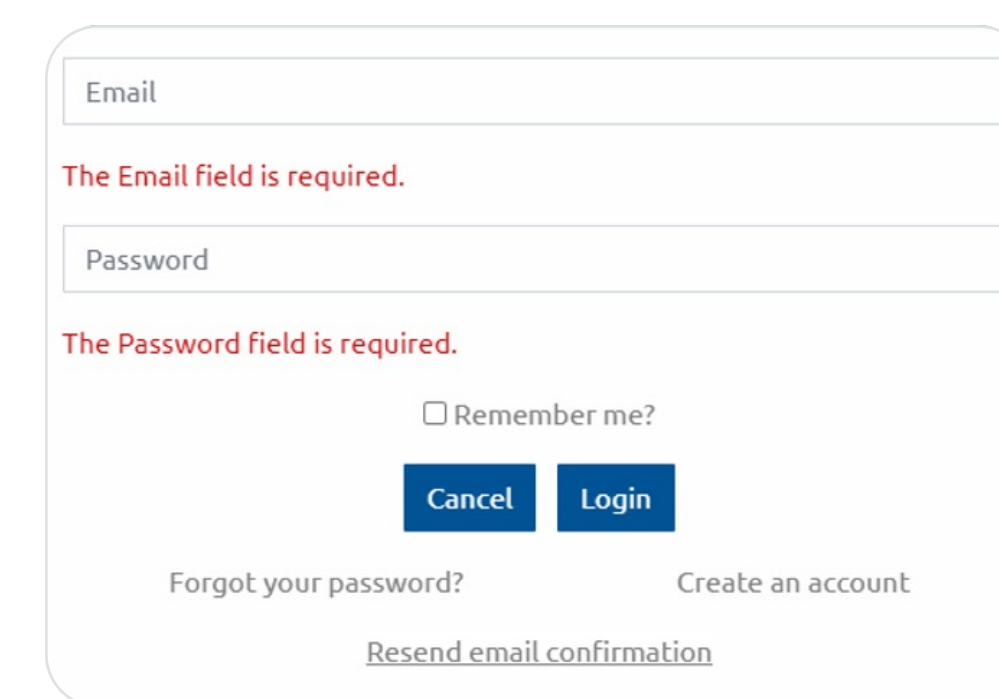
3. Enter the username and password chosen when the GenXys account was created into the pop-up box

a. If an account has not been made, click on Create an account and follow the prompts to register for a new GenXys account

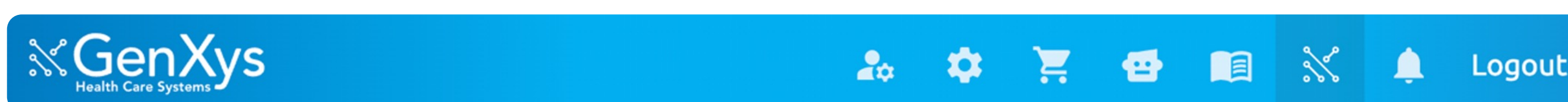
4. Select Login to access your GenXys account

5. A new page will display with all available GenXys software products.

Products that you have purchased and are available for use will have a Launch button. Select Launch under the TreatGx display to begin using TreatGx



 A white login form with two input fields: "Email" and "Password". Below the "Email" field is a red error message: "The Email field is required." Below the "Password" field is a red error message: "The Password field is required." There is a checkbox labeled "Remember me?". At the bottom are two buttons: "Cancel" and "Login". Below the buttons are two links: "Forgot your password?" and "Create an account". At the very bottom is a link: "Resend email confirmation".


Navigating the GenXys Portal



1. The top bar displays several icons on the right-hand side.



Account: Access your user profile, address, email, and password and make any changes you would like



Manage: View patient case invitations and licenses you own



Cart: View products currently in your cart



Support Agent: Use to ask questions about APIs, lab orders, documentation



Support Documents: Visit the Help Center and view manuals



Explore: View your current products



Notifications: View your notifications



Logout: Logout of your account

Accepting Patients

If you have ordered a pharmacogenetic test for a patient, when the results are ready you will receive an email saying that your patient's results are ready. You can import this patient case into the GenXys Patient Portal to use in TreatGx and ReviewGx. In addition, when logged into the GenXys portal a number will appear beside the Notification (bell) icon indicating a PGx Result is complete.



Selecting the Notifications (bell) or Manage (gear) icon will take you to the notifications page:

GenXys
Health Care Systems

Notifications*

Mark as Viewed (1)

Accept Invitation (1)

Decline Invitation (1)

Health Care Provider Invitation Awaiting: 1

*All results filtered and displayed in UTC date and time unless specified.

☒

Modified

Viewed

Type

Detail

☒

2023-11-14

Health Care Provider Invitation Awaiting

First Name: NoSABLabWillard
Last Name: NoSABLabBennett
Date of Birth: 1963-05-08
Sex at Birth: Female
Invitation Date: 2023-11-14
Status: Awaiting Accept Invitation

In this example the lab has invited the Health Care Provider associated with the patient to view their results. You can Mark as Viewed, Accept Invitation, or Decline Invitation. To see the patient's results, first check the box to the left of the patient's name, then select "Accept Invitation". The patient profile and their PGx results will now be available in TreatGx and ReviewGx. When searching for and selecting patients in TreatGx or ReviewGx, patients with lab or PGx results directly imported from a lab will have a DNA icon next to their name:

Patients

Add Patient

Search

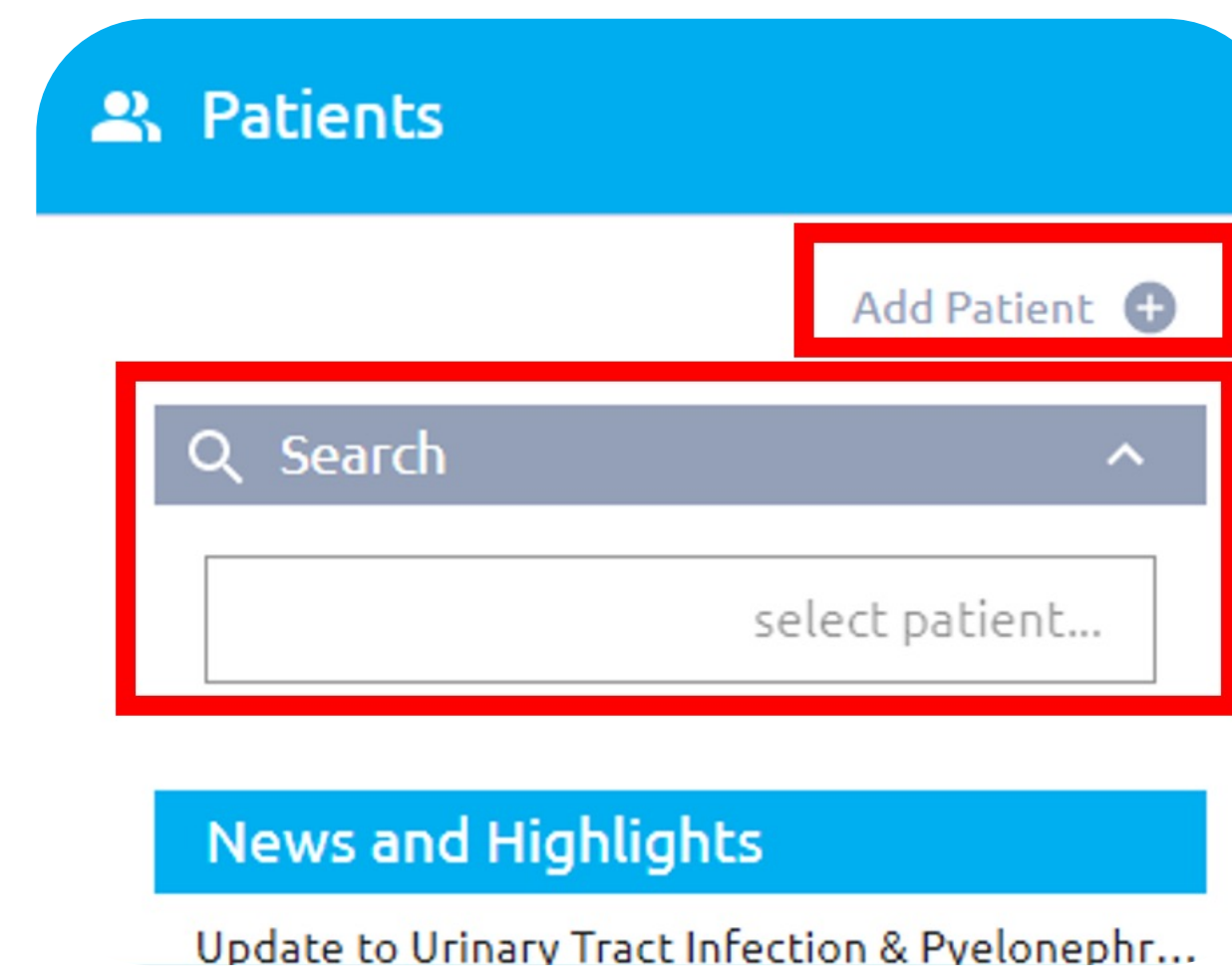
Enter patient name...

Jon Gill - 1910-02-01

Adding and Selecting Patients

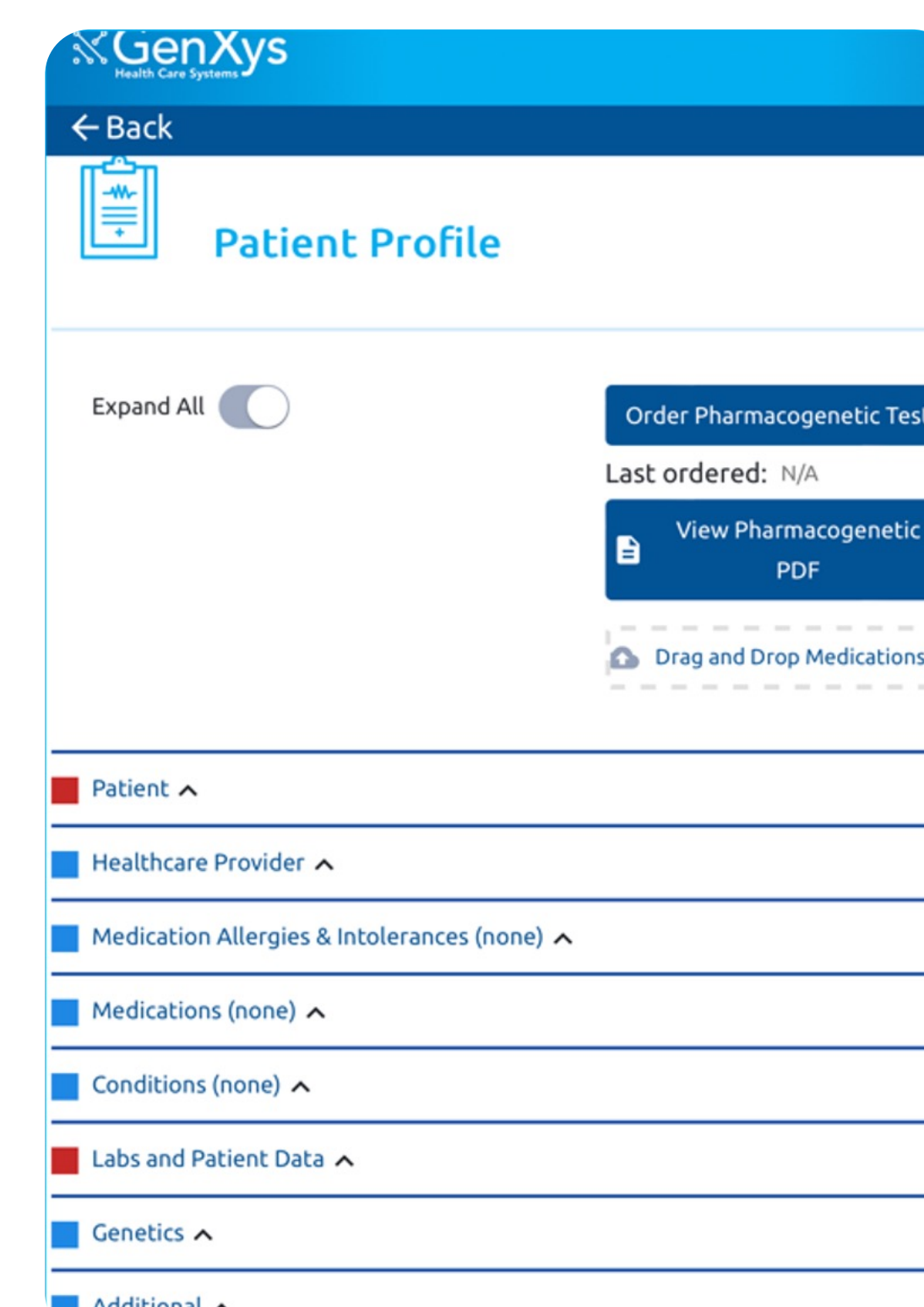
1. The Patients sidebar will appear on the left side of the screen when you open TreatGx and will allow you to:

- Add a new patient profile
- Search for an existing patient profile. Note: Patient profiles can only be selected from search after they have been added

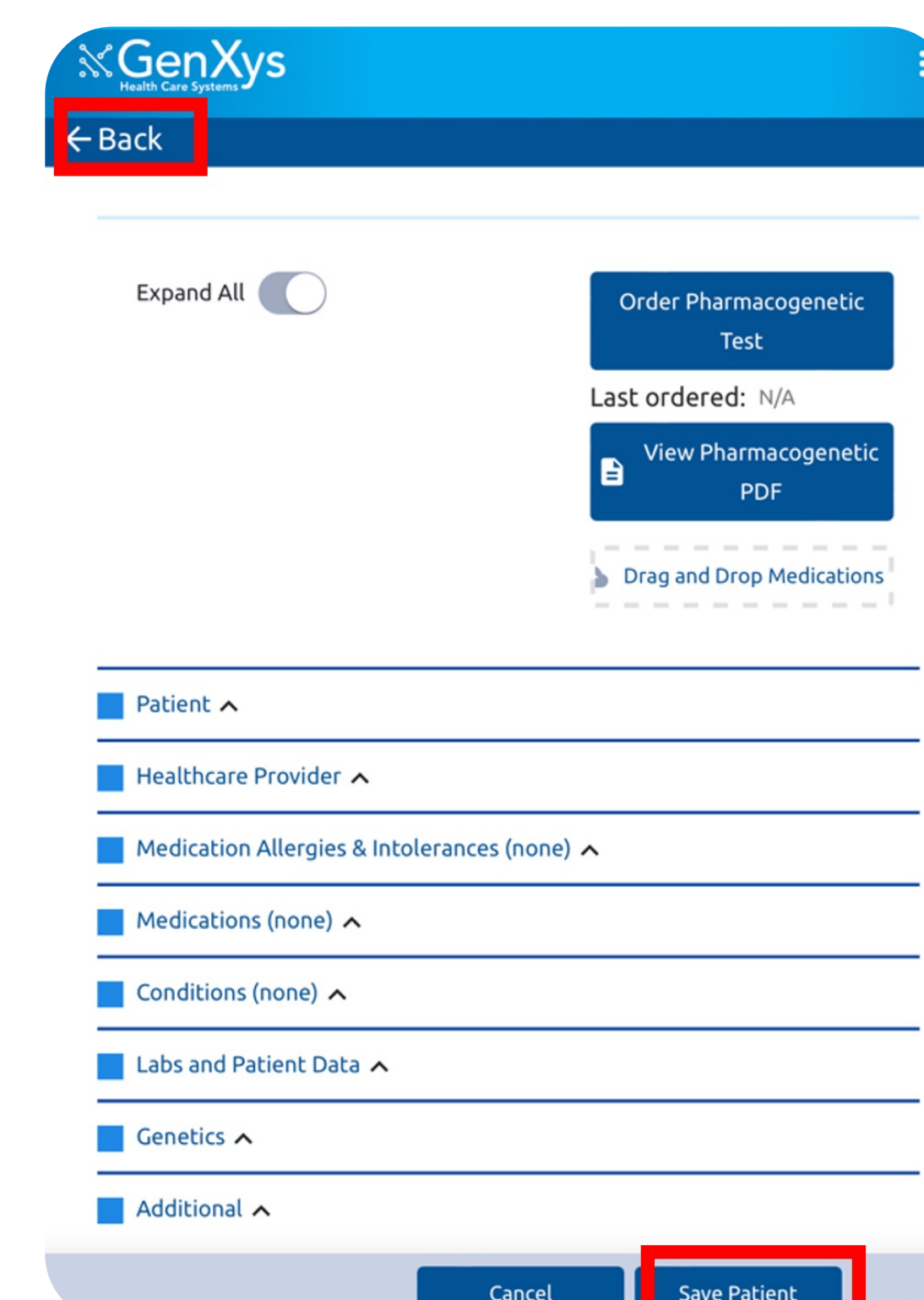


2. Selecting **Add Patient** will bring you to a new page with a blank patient profile with several categories to enter information. (Tip: Entering more information will return more personalized medication options for your patient.) Select one of the following categories to expand the entry field for specific information. Any fields that are tagged with a red box indicate that they require information to be entered for medication options to be generated. An entry box tagged with a blue box indicates one of three things i) it is optional information, ii) a required field has been filled and satisfied or iii) no further information is needed to generate a result.

- Patient (required)
- Healthcare Provider
- Medication Allergies & Intolerances
- Medications
- Conditions
- Labs and Patient Data (required)
- Kidney function defaults to an eGFR of 100 mL/min unless manually changed
- Liver function defaults to No Liver Disease unless manually changed
- Genetics i. All genetic results are defaulted to unknown unless manually changed or pharmacogenetic test results have been directly imported from a lab or other source



3. When all the required fields have been entered, select Save Patient on the bottom right-hand corner of the screen. A green banner will appear to indicate the patient profile has been successfully updated.



4. Select Back on the upper left-hand corner of the screen to return to TreatGx and use the software to generate medication treatment options for the patient.

Patient Profile

There are many sections to fill out. Entering more information will return more personalized medication options for your patient.

Patient Information

Enter patient details

Patient ▾

First Name

Last Name

Email

Phone Number

Date of Birth (mm/dd/yyyy) ⓘ ▾ 📅

Patient Identifier	Identifier Type	Identifier Value	Health System
	e.g. PHN	e.g. ABC-123	e.g. Epic

Healthcare Provider Information

Enter the patient's healthcare provider information

Healthcare Provider ▾

Note: Name will appear on TreatGx and ReviewGx reports under the heading 'Generated by'

First Name

Last Name

Phone Number

Fax Number

Email

Medication Allergies & Intolerances

1. Click on the (+) symbol to bring up the ingredient search menu

2. Search for the agent the patient is allergic to by typing it into the search bar or scrolling through the list and clicking on it.

3. Select whether the agent is an intolerance or allergy.

a. If allergy is selected, more prompts will appear regarding the allergy severity, details of the reaction, confirmation of allergy testing, and if medications of the same class are tolerated.

b. To remove an allergy/intolerance from the patient profile, select the Remove button.

Medication Allergies & Intolerances (none) ▾ +

Note: non-drug excipients and fillers (e.g. peanut, milk protein, dyes) are not checked by the allergy algorithm, as these ingredients may vary with brand and formulation

Healthcare Provider ▴

Medication Allergies & Intolerances (none) ▾ +

Note: non-drug excipients and fillers (e.g. peanut, milk protein, dyes) are not checked by the allergy algorithm, as these ingredients may vary with brand and formulation

Enter an allergy...

Cephalosporin antibiotics

Macrolide antibiotics

NSAIDs (Non Steroidal Anti Inflammatories)

Opioids

Penicillin antibiotics

Macrolide antibiotics ▾

Reaction Type ☐ Intolerance/Adverse Reaction ☒ Allergy

Allergy Severity ☐ Life-threatening reaction ☐ Non-life threatening reaction ☐ Unknown reaction

Reaction Detail

Confirmed with allergy testing ☐

Allergy testing detail

Remove

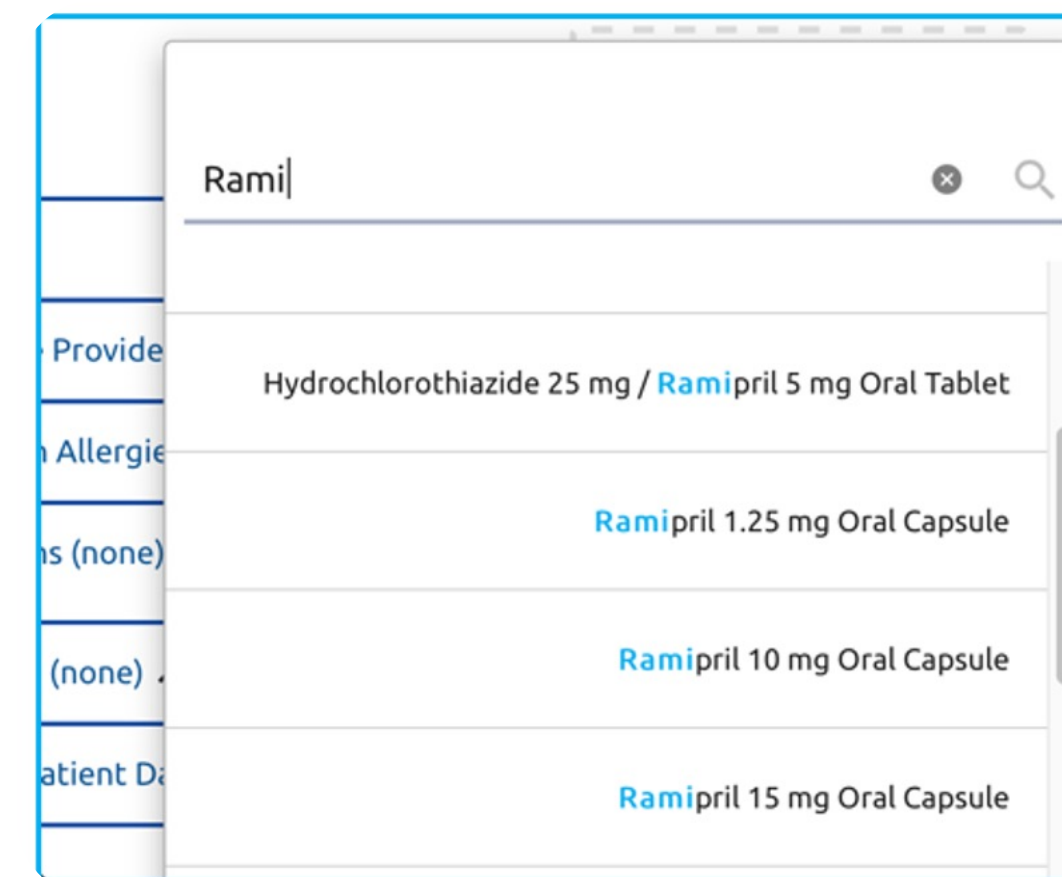
Add

Medications

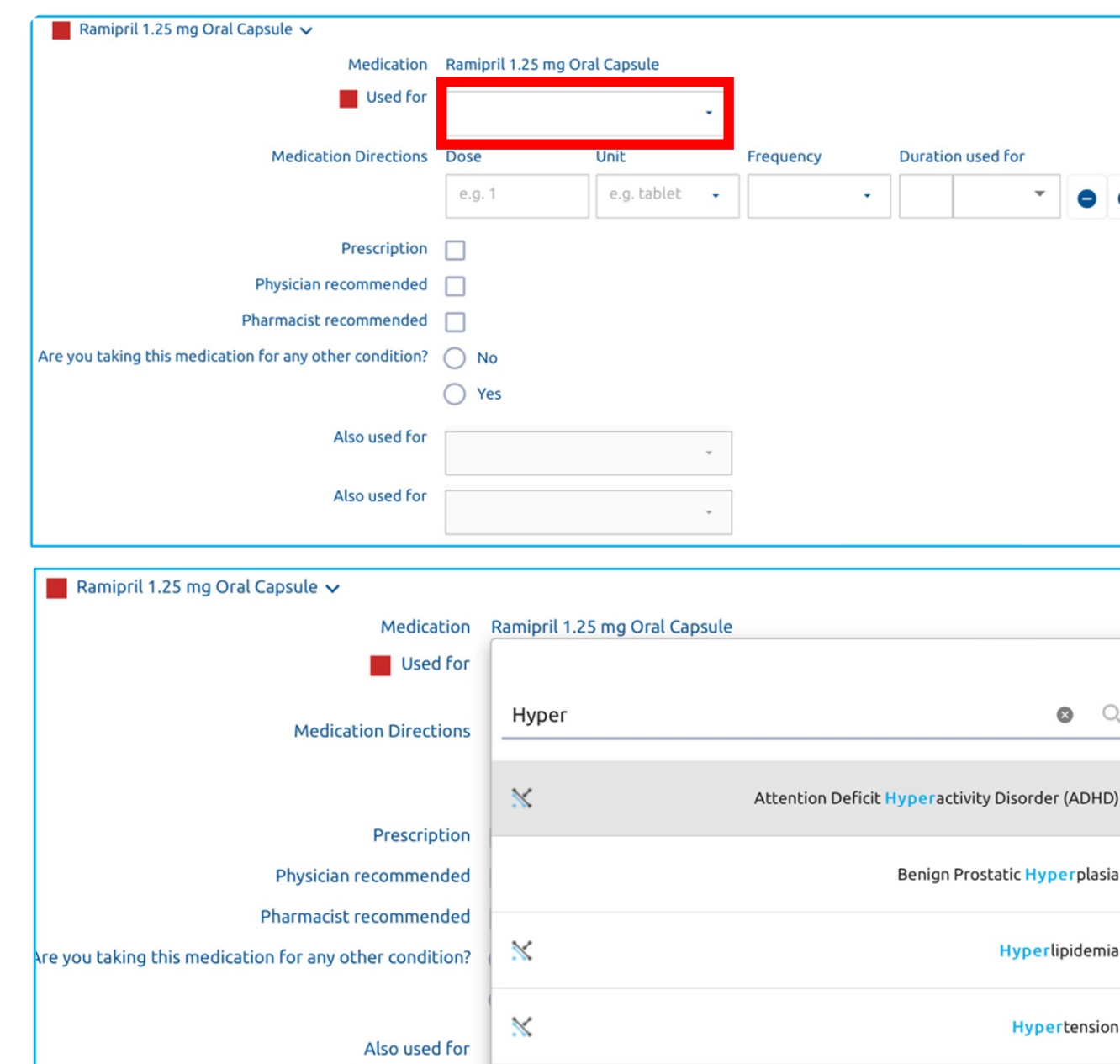
1. Click on the (+) symbol to bring up the ingredient search menu. To remove a medication select (-) symbol



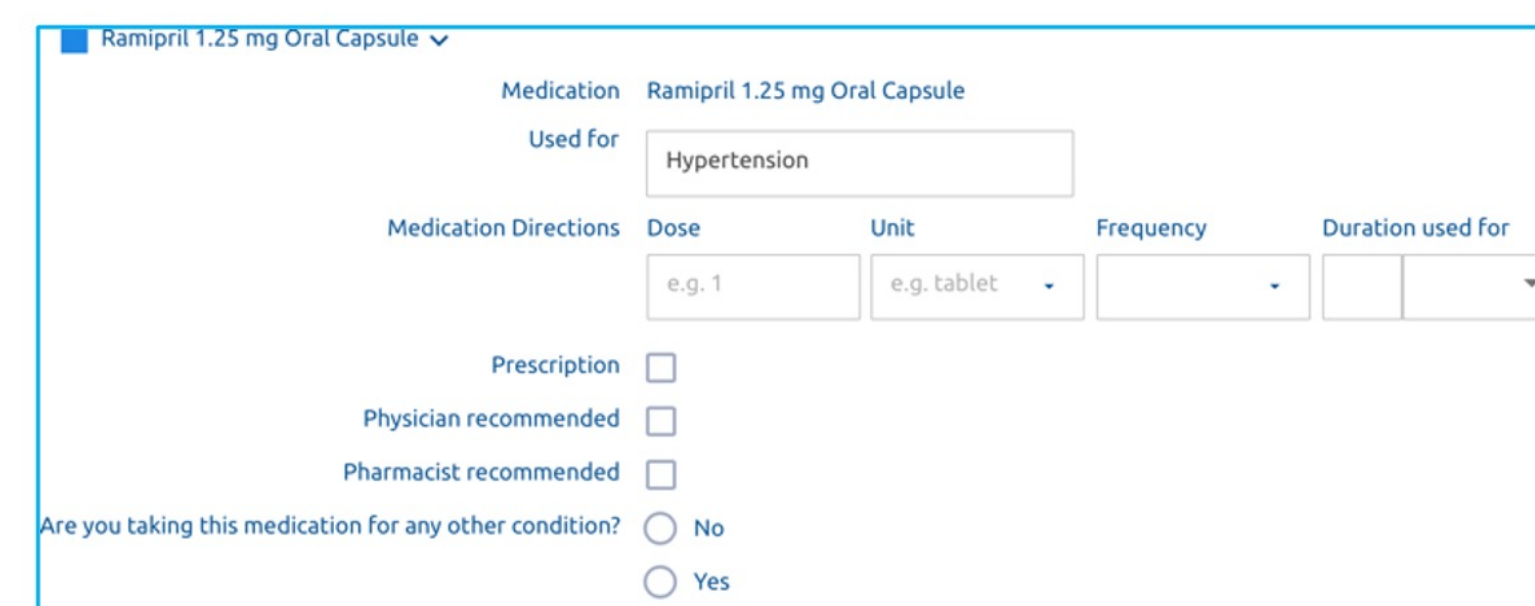
2. Search for the medication the patient is currently taking by typing it into the search bar or scrolling through the list and clicking on it.



3. Select the indication by typing it into the “Used for” field or scrolling through the list.
If ‘Other’ is selected, you will be required to type in an indication. (Note: This is a required field and the medication will not be saved if an indication is not selected)



4. (Optional) Fill in the directions for use, and select if the drug is by prescription, if it was recommended by a physician or pharmacist, and if the drug is being used for any other condition



Conditions

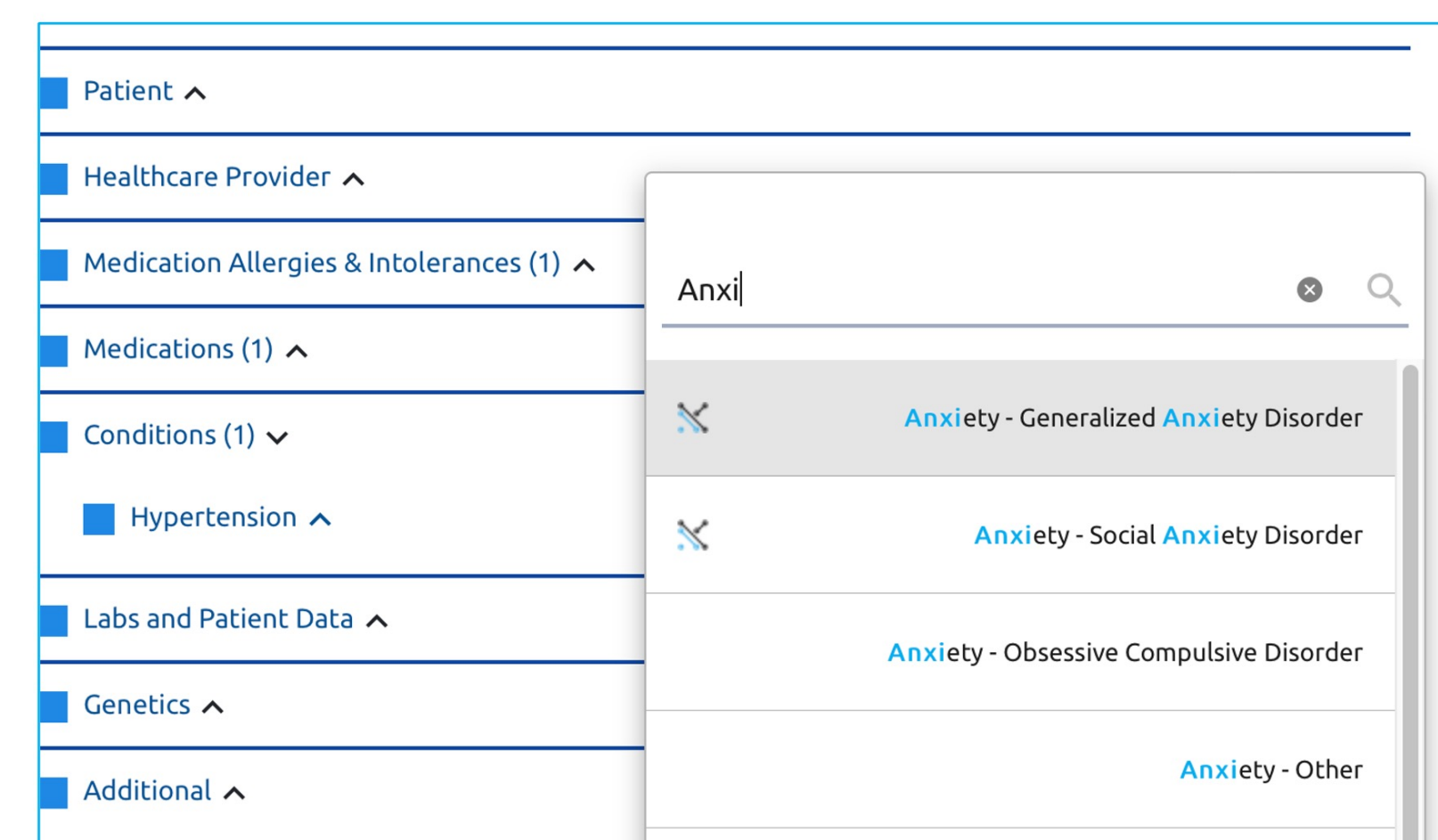
1. Click on the (+) symbol to bring up the conditions search menu.

(Note: This can also be done from the Medication Options page by selecting the “Add Condition” button on the bottom left of the screen.)

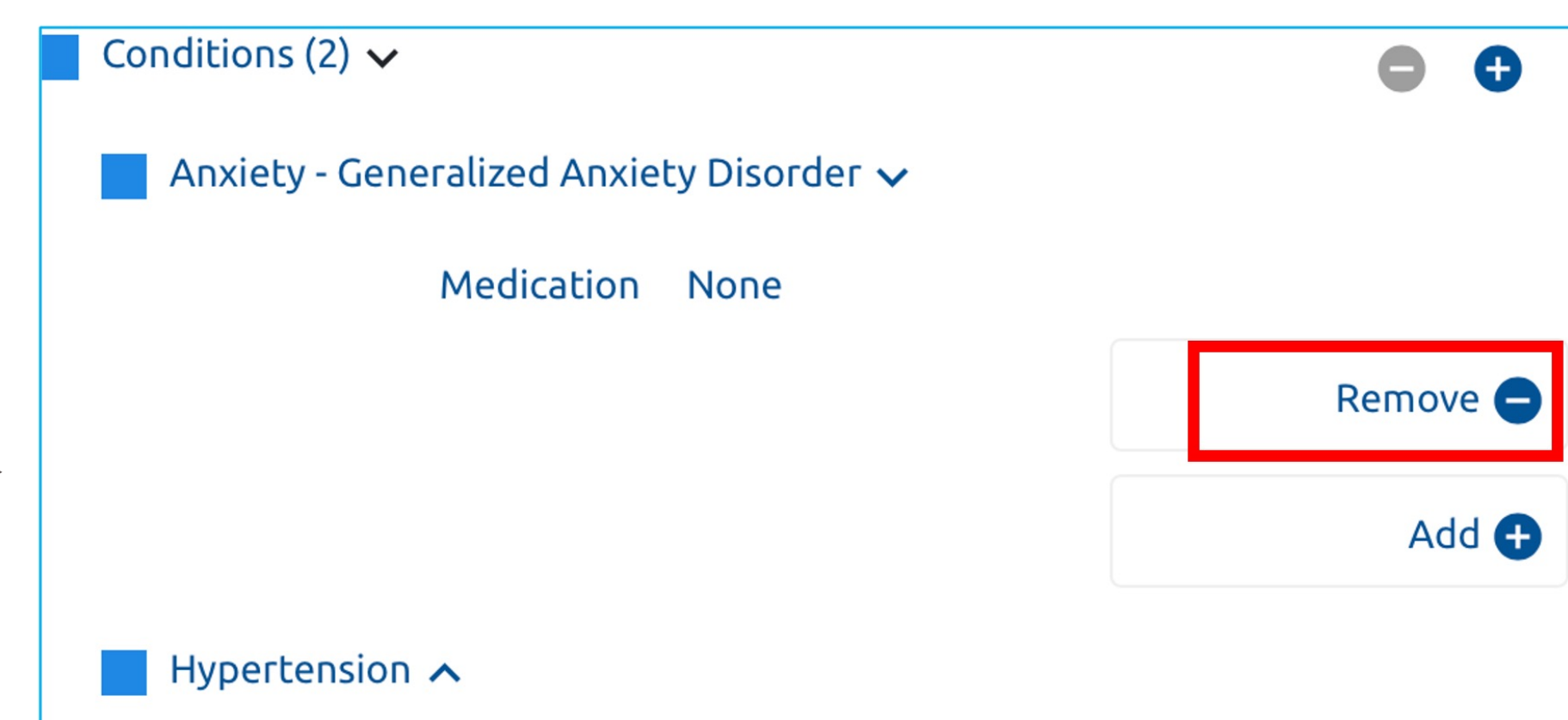


2. Search for the condition by typing it into the search bar or scrolling through the list and clicking on it.

a. The condition may already be populated in this section because of the indication entered for a medication from the previous section



b. To remove a condition from the patient profile, select the Remove button



Tip: Don't forget to click on Save Patient to save all the changes made to the patient profile!

Labs and Patient Data

1. Kidney function is set to a default eGFR of 100 mL/min unless manually changed or imported from other software.

- Adjust the eGFR by using the slider and moving it to the left or right, or by clicking on anywhere along the scale.
- Select hemodialysis or peritoneal dialysis if applicable to your patient.

Kidney function ⌵

eGFR (mL/min)

Kidney Failure	Severe Kidney Impairment	Moderate Kidney Impairment	Mild Kidney Impairment	Normal Function (but may have kidney disease)
0	15	30	60	90

Mild Kidney Impairment: 72

On hemodialysis ☐

On peritoneal dialysis ☐

2. Liver function is set to a default of 'No liver disease' unless manually changed or imported from other software.

- Select the severity of liver disease, if present.
- Check box if they have elevated liver enzymes, hepatitis, or cirrhosis.

Liver function ⌵

Hepatic Impairment Scale (Child-Pugh)

☒ No liver disease

☐ Mild liver disease (Child Pugh A)

☐ Moderate liver disease (Child Pugh B)

☐ Severe liver disease (Child Pugh C)

Elevated liver enzymes ☐

Hepatitis ☐

Cirrhosis ☐

3. Complete "Other" Section

Select your patient's sex at birth. Add the weight and height of your patient in the appropriate fields. Units may be toggled

Other ⌵

Sex ☒ Female

☐ Male

☐ Unknown

Weight (lbs) lbs ▾

Height (in) in ▾

Genetics

Genetic information will automatically populate when a patient's pharmacogenetic test results are imported. If the results were imported by the Health Care Provider accepting an Invitation from the lab when results are ready, the Genetics Section will be filled in with these results, which are grayed out and cannot be modified. If any genes were not included on the panel tested, they will appear as Unknown.

Genetics ▾

ABCG2 rs2231142 ☒ Normal Function (G/G or C/C)

☐ Decreased Function (G/T or C/A)

☐ Poor Function (T/T or A/A)

☐ Unknown

ADD1 rs4961 ☐ G/G

☐ G/T

☐ T/T

☒ Unknown

ADRB2 rs1042713 ☐ A/A

☒ A/G

☐ G/G

☐ Unknown

ANKK1 rs1800497 ☒ A/A

☐ A/G

☐ G/G

☐ Unknown

ATIC rs4673993 ☐ C/C

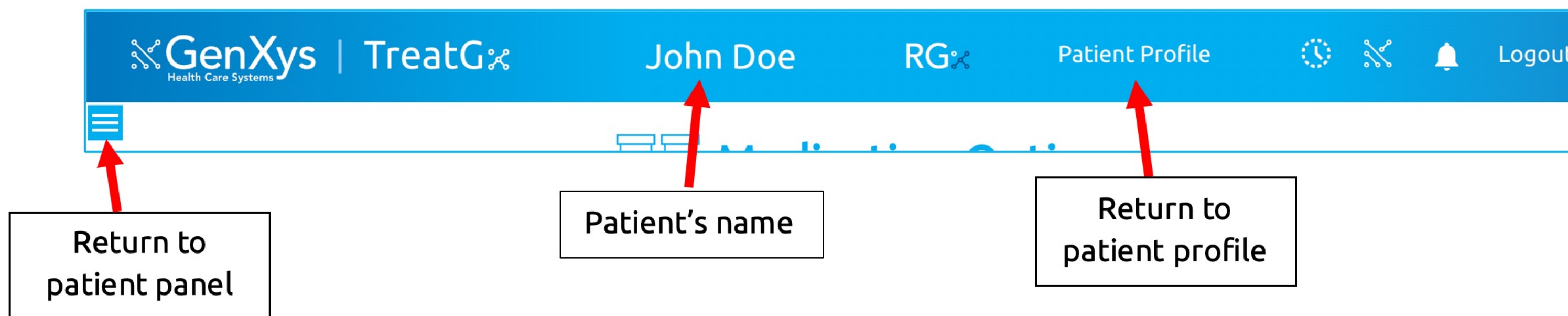
☐ C/T

☐ T/T

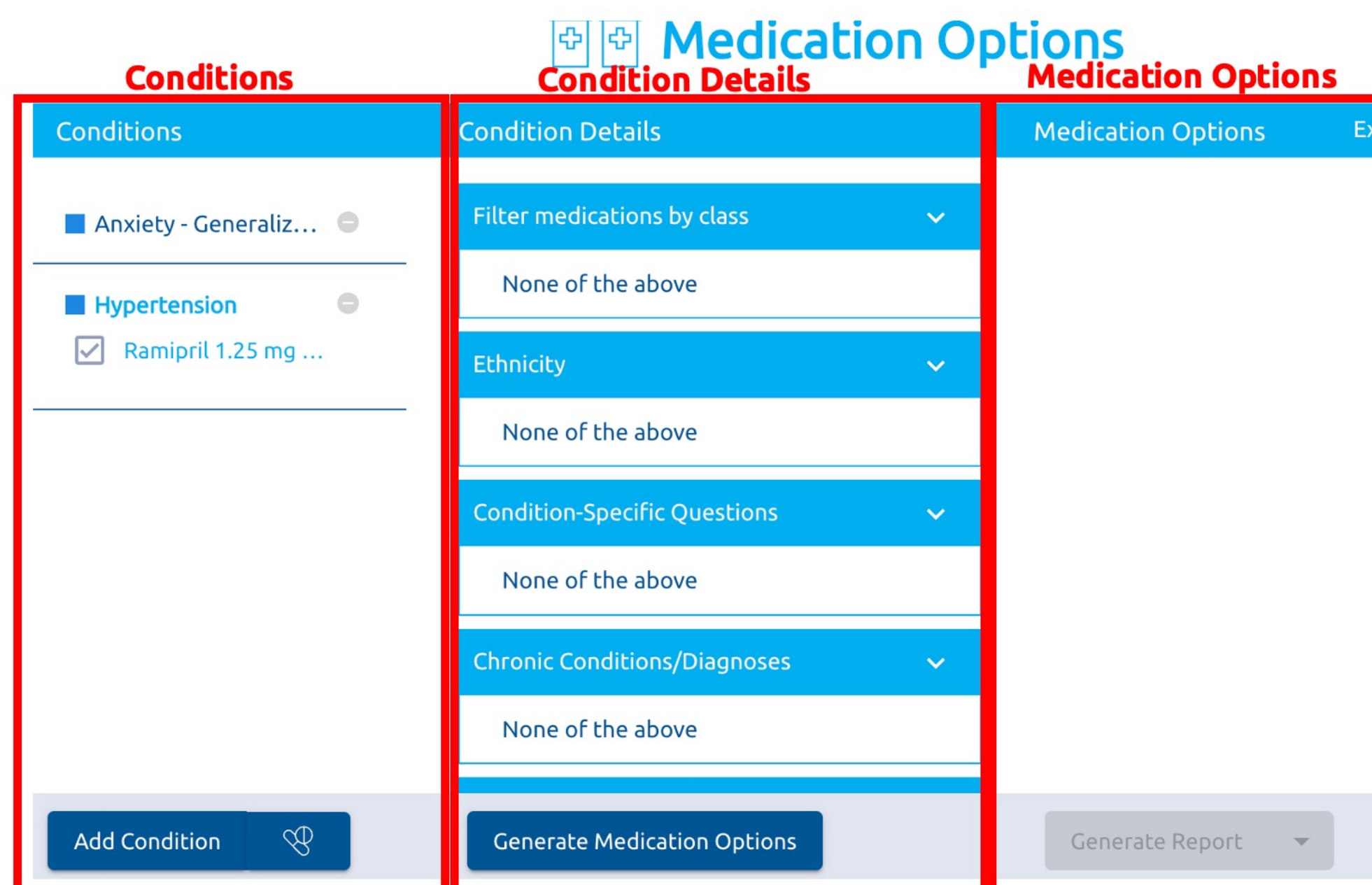
☒ Unknown

Generating Medication Options

From the page banner, you can return to the patient panel, see the current patient's name, or return to the patient's profile



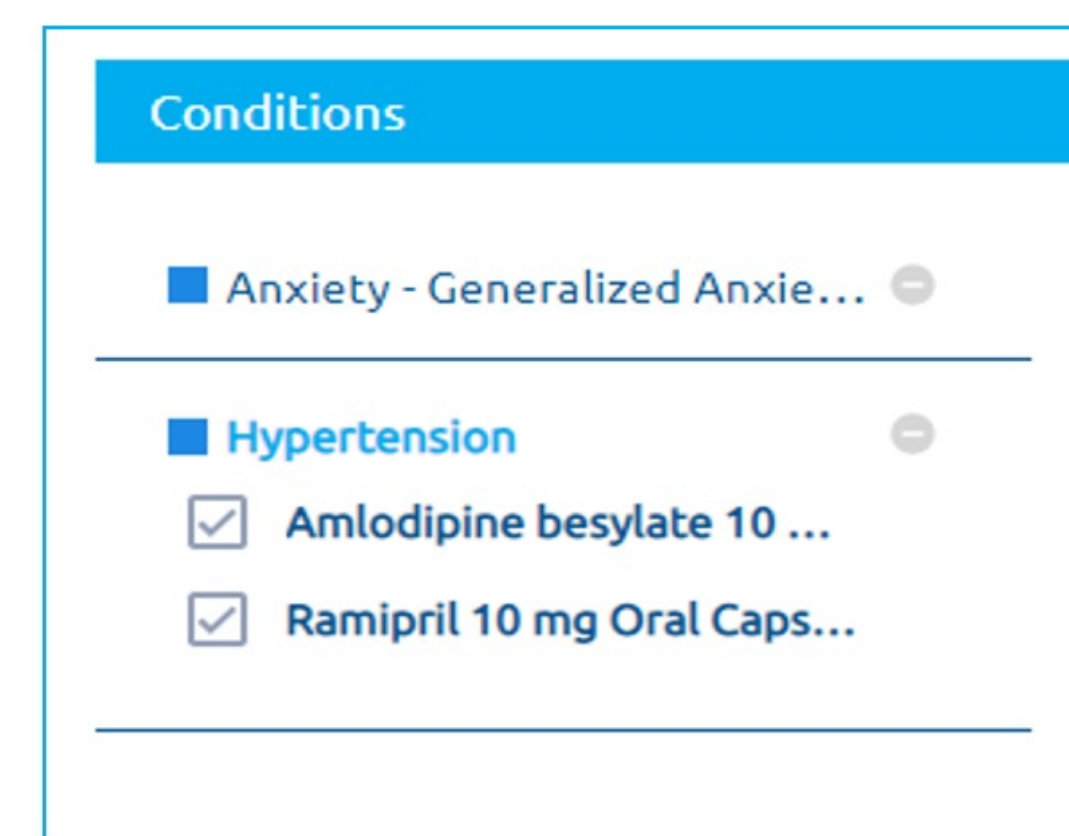
The Medication Options page is divided into three columns Conditions, Condition Details, and Medication Options



Conditions (Left Column)

The conditions column allows you to see all the medical conditions and current medications that have been entered into the selected patients' profile.

1. Select the condition you want to see medication options generated for by clicking on the condition name.
2. Selecting the (-) symbol beside the condition name will allow you to delete it from the patient profile. If there are medications being used for that condition, they will need to be deleted from the patient profile first.
3. Clicking the checked box beside a medication will remove the tick symbol and allow you to deselect that medication from the patient profile. Clicking the empty box will reselect it. (Tip: This is useful when you don't want the generated medication options to consider use of the current medication in the medication options.)
4. Selecting Add Condition at the bottom of this column will bring up a list of conditions that you can search/select and add to the patient profile.
5. Clicking the pill icon at the bottom of this column will return you to the patient profile. (Tip: This can also be done by clicking Patient Profile on the top right of the screen or by clicking the hamburger menu icon in the top left corner which will bring up the Patient sidebar, clicking on Patient Case, and then clicking the section of the patient profile that you would like to edit.



Condition Details (Middle Column)

“Condition Details” asks questions that are specific to the condition requiring medication. Any fields tagged with a red box must be completed for personalized medication options to be generated.

1. Select the options that are applicable to your patient, deselect by clicking on the box again. Multiple options can be selected if there is a square button, while only one option can be selected if there is a circle (i.e., A patient cannot be both a CYP2D6 poor metabolizer and an ultrarapid metabolizer)
If none of the options apply to your patient select “none of the above”.

Some fields such as kidney function or liver impairment may already be populated if they were saved when creating the patient profile.

(Tip: Remember that patient profiles start with default values that assume normal kidney and liver function, and no drug or medical history. Check these for accuracy.)

2. When all the required boxes have been checked the **Generate Medication Options button**, at the bottom of the column, will go from grey to blue and can be selected.

Condition Details

Filter medications by class ▾
None of the above

Ethnicity ▾
None of the above

Condition-Specific Questions ▲
☐ Significant electrolyte disturbances
☐ Anuria
☐ Heart failure
☒ None of the above

Condition-Specific Questions ▲
Generate Medication Options

Condition-Specific Questions ▾
Generate Medication Options

Medication Options (Right Column)

The Medication Options column will populate a list of drugs after the **Generate Medication Options** button has been selected. This drug list varies depending on the condition selected under the Conditions column. The drug list may be separated into a number of tiers dependant on the condition and can be expanded or collapsed. By default, the first drug in the Preferred Therapy Options tier will always be expanded when medication options are generated.

Medication options may be separated into the following tiers:

1. Preferred Therapy Options
2. Other Therapy Options
3. Excluded Therapy Options

Tip: To open the dosing box for every drug, in every tier, click on the “Expand All” toggle.

Medication Options

Expand all ☐

Dosing is based on monotherapy. When using combination therapy, lower doses may be required due to additive hypotension and other adverse effects. Avoid combining multiple drugs with the same mechanism of action (e.g. multiple potassium-sparing agents).

Preferred Therapy Options ▾

Other Therapy Options (Tier 1) ▾

Other Therapy Options (Tier 2) ▾

Excluded Therapy Options ▾

The arrows indicate that the therapy options can be expanded (v) or collapsed (^)

Navigating Medication Options

The medication options generated are usually displayed in different tiers based on the strength of their recommendation for use in that condition. Drugs within these tiers are then grouped by their drug class and sorted alphabetically within that class.

Each drug generated in the Medication Options column is displayed in its own dosing box that can be expanded or collapsed by clicking the arrows. When expanded you will be able to see doses, titration information, side effects, brands available, profiles, pharmacogenetic information, warnings, additional prescribing information, and drug interactions (Note: Not every drug will have all this information available). Drug interactions are generated by an external drug database, and labeled as Mild, Moderate, or Severe. Click to expand the interaction and see more detailed information.

Informational or warning banners may be included within a condition, a specific tier, drug class, or drug to help guide your medication selection.

Banners

Medication Options

Expand all

Dosing is based on monotherapy. When using combination therapy, lower doses may be required due to additive hypotension and other adverse effects. Avoid combining multiple drugs with the same mechanism of action (e.g. multiple potassium-sparing agents).

Informational banners may apply across all tiers

Preferred Therapy Options

First-line medication(s) for hypertension: ACEI or ARB, and/or CCB, and/or thiazide-type diuretic
If BP is not controlled, combine 2 or 3 first-line medications (avoid combining ACEI + ARB, or non-DHP CCB + BB)

ACEI

Benazepril (Angiotensin Converting Enzyme Inhibitor, ACEI) \$\$

Captopril (Angiotensin Converting Enzyme Inhibitor, ACEI) \$\$

Initial Dose

12.5-25 mg PO BID-TID

Titration

Increase daily dose at 1-2 week intervals as needed and tolerated

Usual Dose

25-150 mg PO BID-TID

Maximum Dose

450 mg PO per day

Brands

generics

Interaction - Moderate

Ramipril

Interaction - Minor

Amlodipine

Medication therapy instructions display guidance for a specific tier

Medication class

Arrows indicating that the dosing box, and drug interaction information can be expanded (v) or collapsed (^).

Other Therapy Options (Tier 1)

Add second-line medication(s) for hypertension with CKD: BB, and/or CCB, and/or thiazide-type diuretic (consider loop diuretic if eGFR <30 mL/min)

BB

BB should not be combined with a non-dihydropyridine CCB due to increased risk of bradycardia and heart block

Bisoprolol (Beta Blocker, BB, Cardioselective) \$

Carvedilol (Beta Blocker, BB, Combined Alpha- and Beta-Receptor Blocker) \$

Warning Banner

Doses are automatically adjusted when you edit the patient’s profile to change their kidney function, liver status, or include new drugs. Using the example of Captopril, you can see that the initial dose has been adjusted and a message generated.

ACEI	
Benazepril (Angiotensin Converting Enzyme Inhibitor, ACEI) \$\$	
Captopril (ACE Inhibitor, ACEI) \$\$	
Initial Dose	12.5 mg PO once daily or BID
Titration	Increase daily dose at 1-2 week intervals as needed and tolerated
Maximum Dose	450 mg PO per day (in those with normal kidney function)
Brands	generics
Initial dose reduced due to kidney impairment (eGFR < 75 mL/min)	
Interaction - Moderate	Ramipril
Interaction - Minor	Amlodipine

If TreatGx detects a pharmacogenetic association from the imported pharmacogenetic test results, an appropriate genetic note or dose adjustment will be made to the associated drugs. The pharmacogenetic association will be tagged with the  icon:

Metoprolol Tartrate IR (Beta Blocker, BB, Cardioselective) \$	
Initial Dose	25-50 mg PO BID
Titration	Increase dose from 50 mg BID to 100 mg BID after 1 week if inadequate response, then subsequently increase daily dose by 100 mg (divided BID) at 2 week intervals as needed and tolerated
Usual Dose	50-100 mg PO BID
Maximum Dose	400 mg PO per day
Brands	generics
 This patient may be at higher risk of bradycardia and other adverse effects with metoprolol due to CYP2D6 poor metabolism status. Titrate slowly and use lower doses if required.	
Interaction - Moderate	Amlodipine
Interaction - Minor	Ramipril

The “Excluded Therapy Options” appear after the “Preferred Therapy Options” and “Other Therapy Options” tiers. Medications displayed in this window are recommended for use in the selected condition, but are contraindicated or excluded based on the patient profile and options selected in the Condition Details column. The reason for exclusion is displayed.

Excluded Therapy Options
Captopril ACE Inhibitor, ACEI Excluded due to renal function (eGFR)
Olmesartan Angiotensin Receptor Blocker, ARB Excluded due to renal function (eGFR)
Metoprolol Succinate Beta Blocker, BB, Cardioselective Not available in Canada
Propranolol Beta Blocker, BB, Noncardioselective Contraindicated due to hypoglycemia
Amlodipine Calcium Channel Blocker, Dihydropyridine, CCB Excluded due to use of CYP3A4 inhibitor

“Condition-Specific” information is at the end of the Medication Options column. This includes the scope of the algorithm and any additional information that may be useful in understanding how to use this algorithm. These banners are tagged with the  icon:

 Combination therapy may be preferred especially if blood pressure is >20/10 mm Hg over target. Monotherapy may be preferred in certain groups such as frail older adults. Single-pill combinations (SPCs) can help improve adherence.
 Drug interaction dosing is based on monograph recommendations that assume only one interacting drug
 Hypertension: TreatGx algorithm includes treatment options for adults when pharmacotherapy is required for reaching blood pressure targets. Although the Hypertension algorithm does account for some common co-morbidities, if another condition is present (e.g. atrial fibrillation, heart failure, left ventricular hypertrophy, post-myocardial infarction, secondary stroke prevention), its treatment should be optimized first before treating hypertension, and if additional BP control is required then this algorithm may be used. TreatGx does not account for multiple co-morbidities. TreatGx does not include treatment options for patients under 18 years of age, those who are planning pregnancy, pregnant, or breastfeeding, or for treatment of hypertensive crisis or secondary hypertension (e.g. hyperaldosteronism, pheochromocytoma).
 Key for references:
 Single pill combinations available in Canada:

