NHS
County Durham
Clinical Commissioning Group

Treatment Guidelines for Uncomplicated Hypertension

This guideline was adapted from the West Yorkshire and Harrogate Healthy Hearts Hypertension Guidance and has been prepared and approved for use within County Durham Clinical Commissioning Group.

Full details of contra-indications and cautions for individual drugs are available in the BNF or in the Summary of Product Characteristics (available in the Electronic Medicines Compendium) www.emc.medicines.org.uk

For an explanation of abbreviations used, please refer to appendix 1.

Version number	1
Approved by County Durham CCG SCoMO	September 2021
Review due	September 2022

Treatment Guidelines for Uncomplicated Hypertension

1. Background

Hypertension is one of the leading risk factors for premature death and disability. In England, only around 4 in 10 adults have their blood pressure diagnosed and controlled. Guidelines have increasingly focused on the stepped-care approach, initiating treatment with different single treatments and then sequentially adding other drugs until blood pressure (BP) control is achieved. This traditional method requires numerous attendances at the GP practice and many repeated blood tests early on in treatment. A simplified, but still evidence-based approach, is needed to make a significant improvement in population health given the finite resources available in general practice.

These guidelines were adapted from the West Yorkshire and Harrogate Hypertension Guidelines (developed as part of the Yorkshire and Humber AHSN Healthy Hearts programme) and aim to improve outcomes for the population by using a treatment pathway that is easier to implement whilst still following an evidence-based algorithm, drawing on European Society of Cardiology guidance. These guidelines are believed to offer a pragmatic alternative to the current NICE Hypertension Guidelines NG136 and support the message that it is swift BP reduction that will benefit patients, regardless of the specific type of medication that is used to achieve this. Please see appendix 2 for an overview of key differences between the Healthy Hearts Hypertension Guidelines and NICE guidance. These guidelines are not intended to be a comprehensive document and further guidance/training for some health professionals may be required.

2. Scope

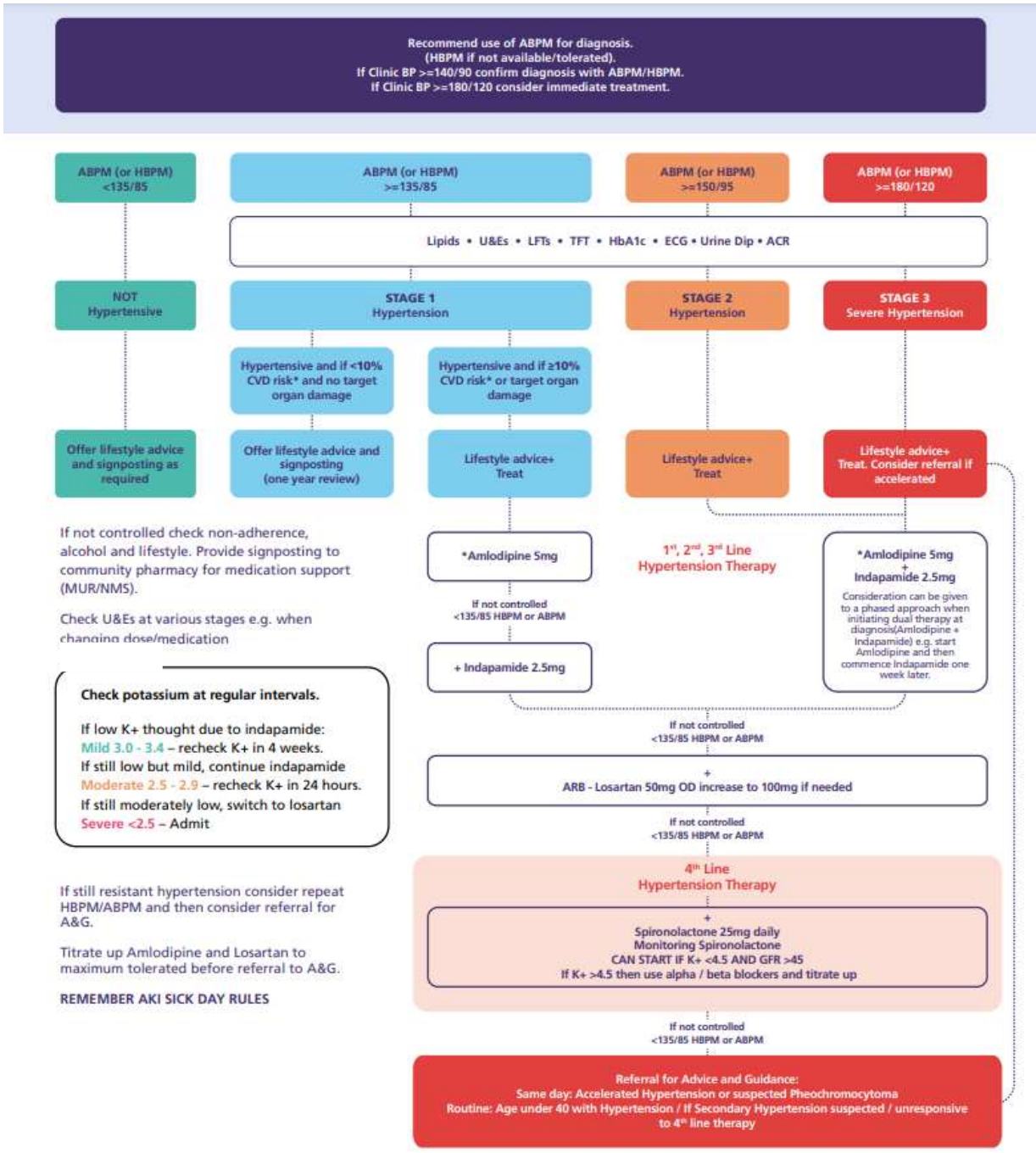
These treatment guidelines are for uncomplicated hypertension (in patients under 80 years of age) and is not applicable to:

- patients over 80 years
- diabetes
- chronic kidney disease (CKD) 3B+
- heart failure
- ischaemic heart disease (IHD)/history of myocardial infarction (MI)
- history of stroke
- peripheral arterial disease (PAD)
- pregnancy

The following NICE guidelines provide clinical guidance on the management of hypertension for patients outside of this local guidance:

- Hypertension in Adults [NG136] www.nice.org.uk/guidance/ng136
- Hypertension in Pregnancy [NG133] www.nice.org.uk/guidance/ng133
- Chronic Kidney Disease in Adults [CG182] https://www.nice.org.uk/guidance/cg182
- Type 1 Diabetes [NG17] https://www.nice.org.uk/guidance/ng17

3. Pathway



*When assessing CVD risk, use QRISK 3 where available www.qrisk.org/three

AKI SICK DAY RULES When unwell with any of the following: Vomiting, diarrhoea, or general dehydration due to intercurrent illness, then STOP taking the medicines listed below (restart after feeling well/after 24-48hrs of eating and drinking normally):

- ACE Inhibitors
- ARBs
- NSAIDs
- diuretics
- metformin
- sulfonylureas
- SGLT2 inhibitors (e.g. empagliflozin)

For further details, see: www.nice.org.uk/advice/KTT17/chapter/Evidence-context

If a patient has an ADR, another drug from the same therapeutic drug group may be considered e.g. a patient suffering from ankle oedema with amlodipine can be switched to lercanidipine.

Benefits of phased introduction of dual therapy: Reduces risk of side effects e.g. sudden symptomatic drop in BP, and allows identification of any agent-specific side effects.

Time lines

For advice regarding minimum intervals between up-titration steps, monitoring requirements and frequency for each specific drug group (e.g. ACEIs, ARBs, diuretics, calcium channel blockers and spironolactone), please see NICE Clinical Knowledge Summaries at: https://cks.nice.org.uk/topics/hypertension/prescribing-information/.

Preferred first line drugs if other comorbidities:

- Diabetes / Heart Failure / Previous MI = ACEI or ARB
- Symptomatic angina = Betablocker
- CKD with Proteinuria = ACEI or ARB

Shared decision-making and lifestyle

- Treatment and care should take into account people's needs and preferences. People with hypertension should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals.
- Shared decision-making with patients and lifestyle advice should be considered at every stage of the treatment protocol. Encourage as many patients as possible to use self BP monitoring at home.
- Signpost to relevant websites for further advice on where to purchase home BP monitors and "how to use" guides.
- Medication adherence should be considered at every stage of the treatment protocol.

- There is a lot of helpful information including a 'looking after your heart' resource booklet to help support conversations with patients. You can find these on the website: www.westyorkshireandharrogatehealthyhearts.co.uk
- Patients should be encouraged to use community pharmacy services, such as: www.nhs.uk/live-well/healthy-body/how-your-pharmacist-can-help
- Patients and clinicians are encouraged to utilise Me and My Medicines resource; a campaign led by patients and supported by clinical staff to help people raise concerns and use their medicines better. www.meandmymedicines.org.uk

4. Financial implications

Based on OpenPrescribing time series of prescribing trends within West Yorkshire and Harrogate Health & Care Partnership (STP) compared with other STPs (see appendix 3), the financial impact of the introduction of these guidelines is likely to be minimal.

Over the past five years, number of prescriptions for amlodipine within West Yorkshire and Harrogate Health & Care Partnership did not increase significantly, both in absolute and relative measures (per 1000 patients), but followed similar trends as seen in other STPs across England. It was noted that, when comparing prescribing at CCG level, County Durham CCG is already a higher prescriber of amlodipine than NHS North Yorkshire, NHS Calderdale, NHS Kirklees, NHS Bradford District and Craven, NHS Wakefield and NHS Leeds CCGs.

Similarly, the prescribing of ACE inhibitors and ARBs did not change significantly over the past five years. Again, County Durham CCG is a high prescriber of these groups of drugs.

The relative position of West Yorkshire and Harrogate Health & Care Partnership as an indapamide prescriber did increase compared to other STPs across the country, from 5th to 2nd place. Still, it is difficult to quantify an expected increase in prescribing as there has been a steady increase in indapamide prescribing across the board over the past five years. Section (d) in appendix 3 shows that the steepest rise in indapamide prescribing was 16% between Q4 2018/19 and Q4 2019/20 which subsequently appears to have stabilised by Q4 2020/21.

The current price of indapamide 1.5mg MR (Drug Tariff June 2021) is £3.40/30 tablets, whereas the price of indapamide 2.5mg is £3.04/28 tablets. A 16% increase in indapamide MR prescribing increased annual spend by around £93,349.

5. Appendices

Appendix 1: Abbreviations
Appendix 2: Key differences between Healthy Hearts and NICE hypertension treatment guidance
Appendix 3: Current prescribing trends of antihypertensive medication, specifically amlodipine, ACEIs, ARBs and indapamide

Appendix 1: Abbreviations

ABPM	Ambulatory Blood Pressure Monitor (24hr)
ACEI	Angiotensin Converting-Enzyme Inhibitor (ACE Inhibitor)
ACR	Urine Albumin to Creatinine Ratio
ADR	Adverse Drug Reaction
A&G	Advice and Guidance
AKI	Acute Kidney Injury
ARB	Angiotensin II Receptor Blocker
BP	Blood Pressure
CKD	Chronic Kidney Disease
CVD	Cardiovascular Disease
D&V	Diarrhoea and vomiting
ECG	Electrocardiogram
GFR	Glomerular Filtration Rate
HbA_{1C}	Glycated Haemoglobin
HBPM	Home Blood Pressure Monitor
K^+	Potassium
LFTs	Liver Function Tests
MI	Myocardial Infarction
OD	Once daily
TC:HDL	Total Cholesterol to HDL Ratio
TFT	Thyroid Function Test
U&Es	Urea and Electrolytes

Appendix 2: Key differences between Healthy Hearts and NICE hypertension treatment guidance

Healthy Hearts approach	NICE approach
Specific type and dose of medication used, to facilitate engagement	Classes of medications recommended, no specified member of a class is stipulated and no specific dose
First line is the same for all patients under 80: amlodipine as a CCB	Different medication based on age or ethnicity First line can be either CCB or ACEI/ARB
If BP is quite high (>150/95), first line treatment is to start two medications at once. This brings BP down more quickly and reduces cardiovascular events	There is no use of first line combination therapy
Second line is indapamide as a thiazide-like diuretic	Second line can be ACEI, ARB or CCB, whichever has not yet been prescribed
Third line is losartan as an ARB (to reduce side effects from ACEI). ARBs are relegated to third line to reduce number of nurse/GP up-titration appointments and U&Es needed.	Third line is a thiazide-like diuretic: indapamide or chlortalidone
Fourth line is spironolactone (with careful kidney blood tests/U&Es)	Fourth line is either spironolactone, betablocker, alpha blocker, or loop diuretic

NICE have stated that "the recommendations in their guidelines represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations… They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties."

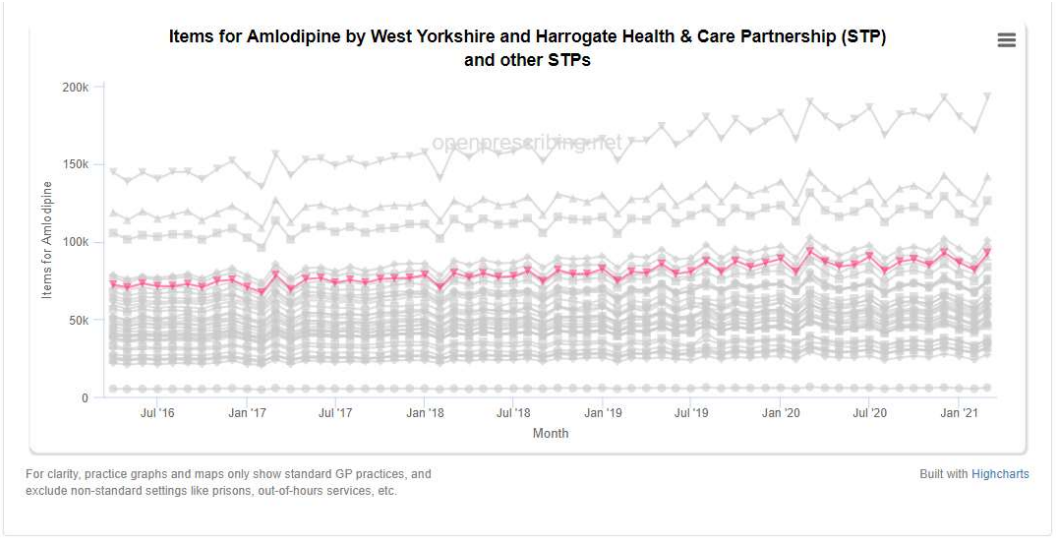
These guidelines draw on the European Society of Cardiology and were widely consulted on within both primary care and secondary care along with the Local Medical Committee and Public Health teams, who all supported this approach.

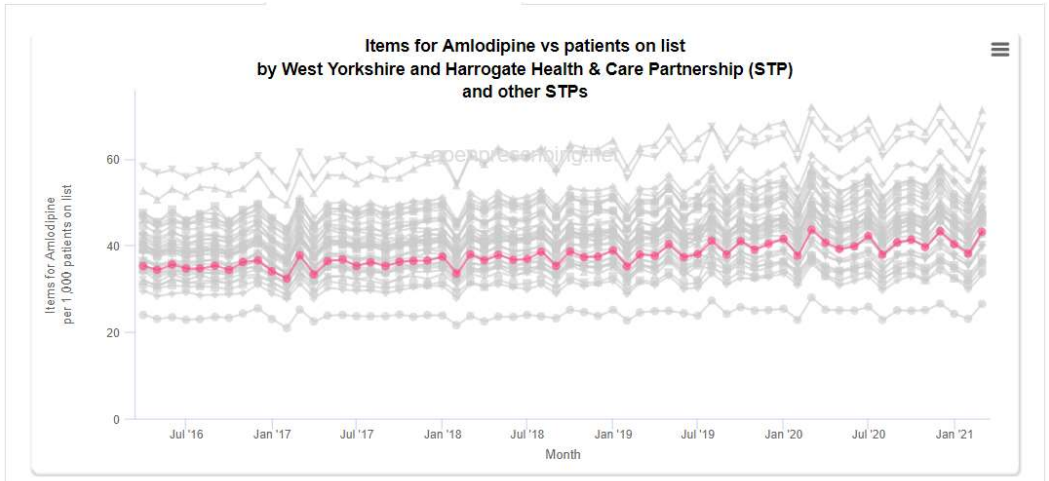
These guidelines have been endorsed by the West Yorkshire and Harrogate Healthy Hearts Project and were signed off by each of the Area Prescribing Committees across West Yorkshire and finally by the West Yorkshire and Harrogate Integrated Care System.

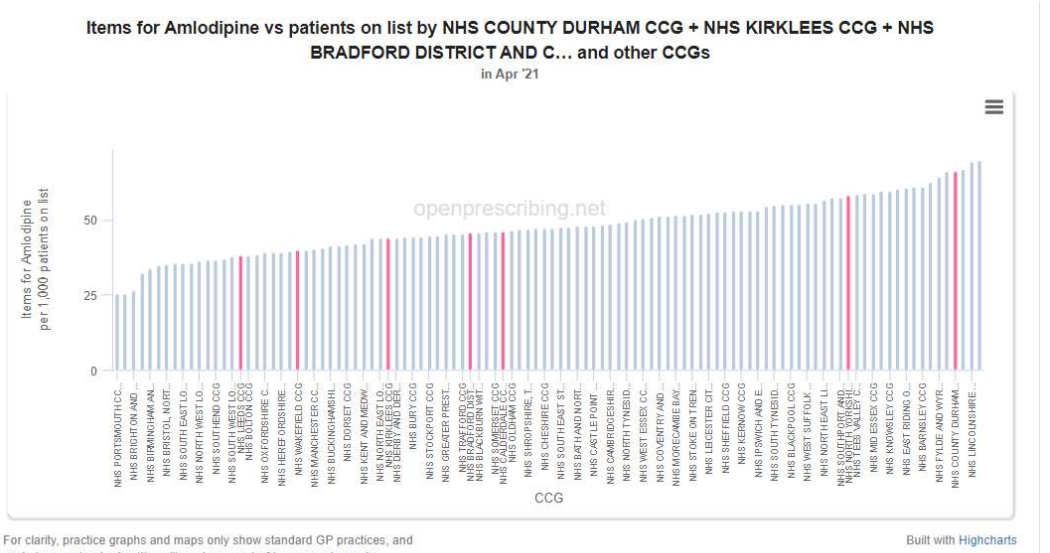
More details on the guidance can be obtained by visiting the West Yorkshire and Harrogate Healthy Hearts website www.westyorkshireandharrogatehealthyhearts.co.uk

Appendix 3: Current prescribing trends of antihypertensive medication, specifically (a) amlodipine, (b) ACEIs, (c) ARBs and (d) indapamide

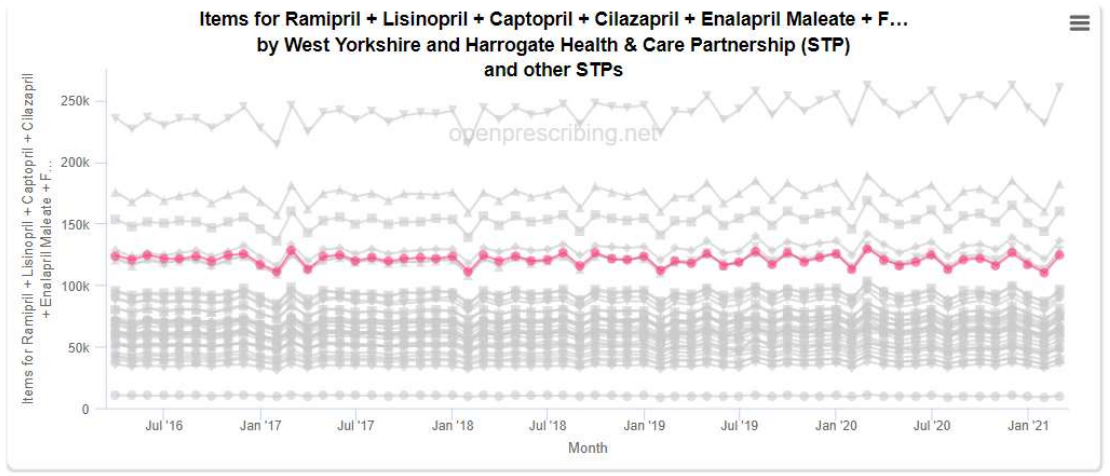
a. Amlodipine prescribing trends





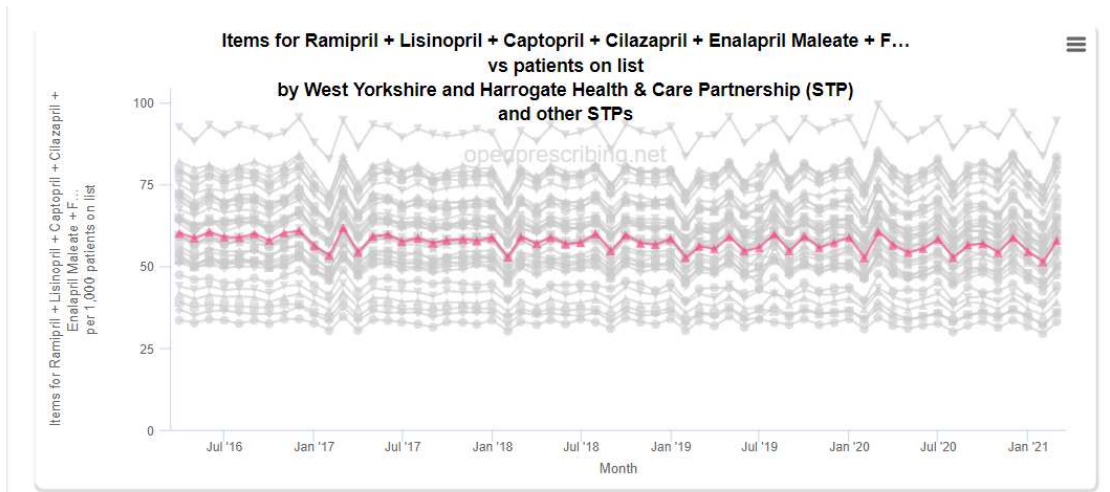


b. ACE inhibitor prescribing trends



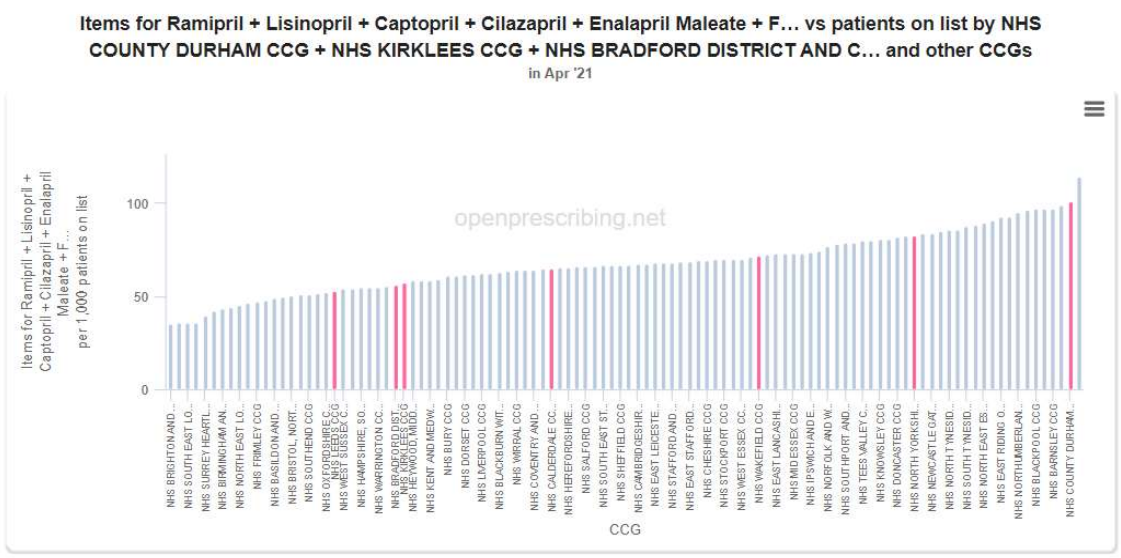
For clarity, practice graphs and maps only show standard GP practices, and exclude non-standard settings like prisons, out-of-hours services, etc.

Built with Highcharts



For clarity, practice graphs and maps only show standard GP practices, and exclude non-standard settings like prisons, out-of-hours services, etc.

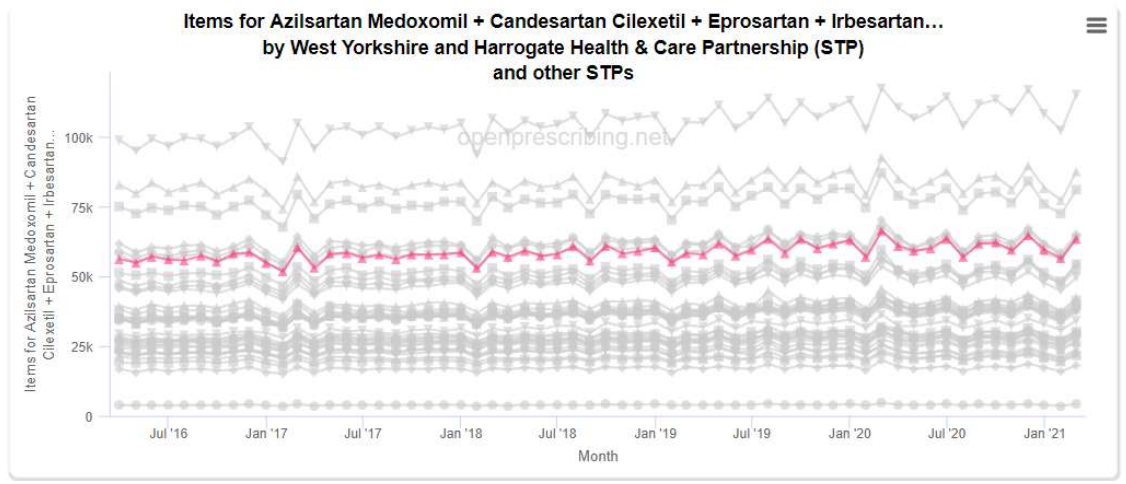
Built with Highcharts



For clarity, practice graphs and maps only show standard GP practices, and exclude non-standard settings like prisons, out-of-hours services, etc.

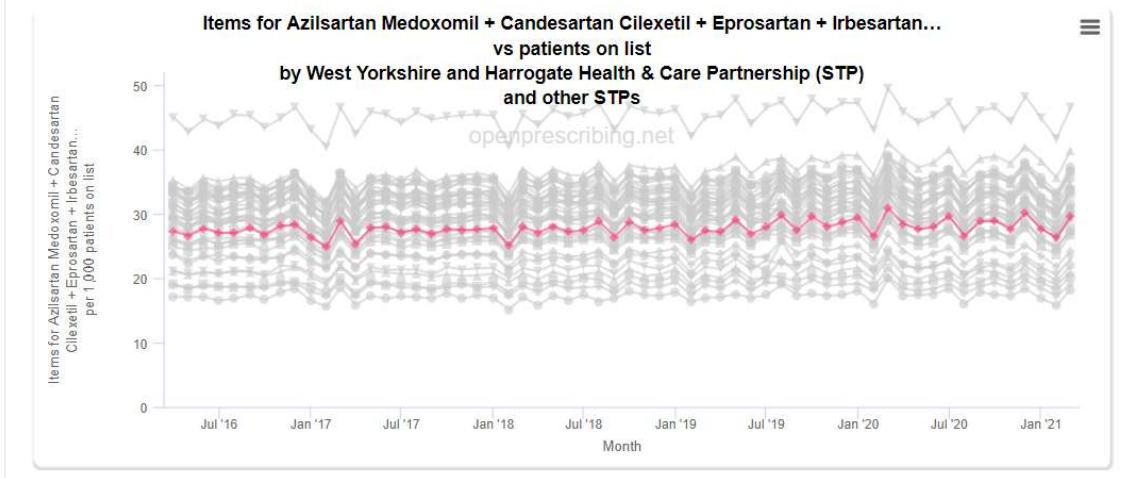
Built with Highcharts

c. ARB prescribing trends



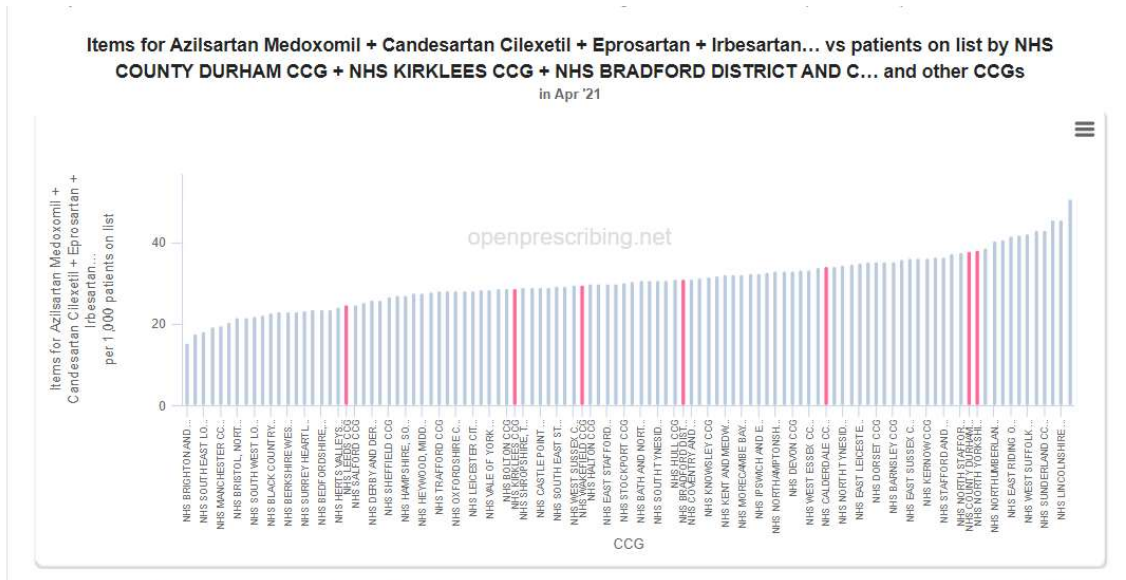
For clarity, practice graphs and maps only show standard GP practices, and exclude non-standard settings like prisons, out-of-hours services, etc.

Built with Highcharts



For clarity, practice graphs and maps only show standard GP practices, and exclude non-standard settings like prisons, out-of-hours services, etc.

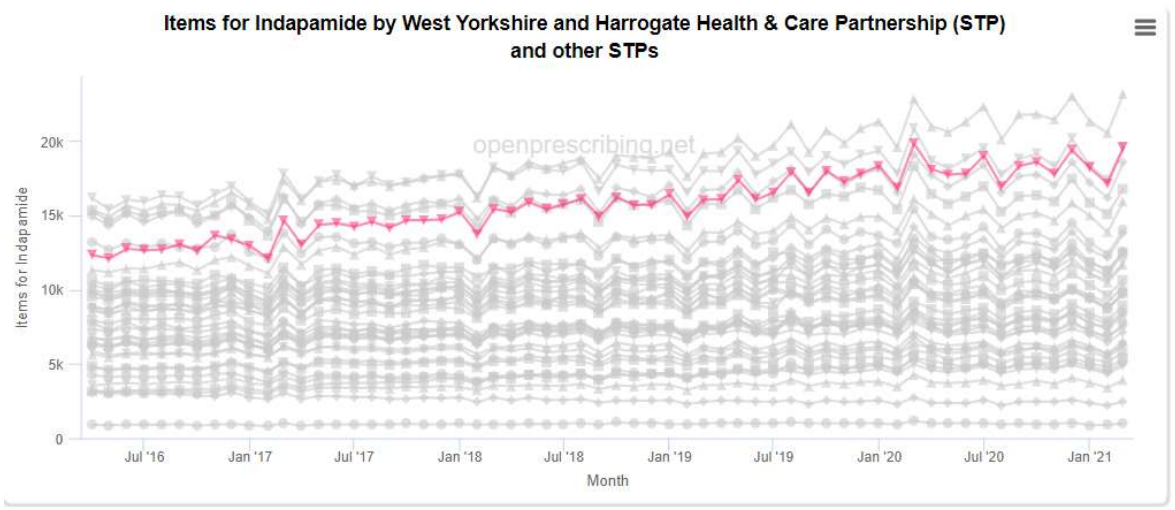
Built with Highcharts



For clarity, practice graphs and maps only show standard GP practices, and exclude non-standard settings like prisons, out-of-hours services, etc.

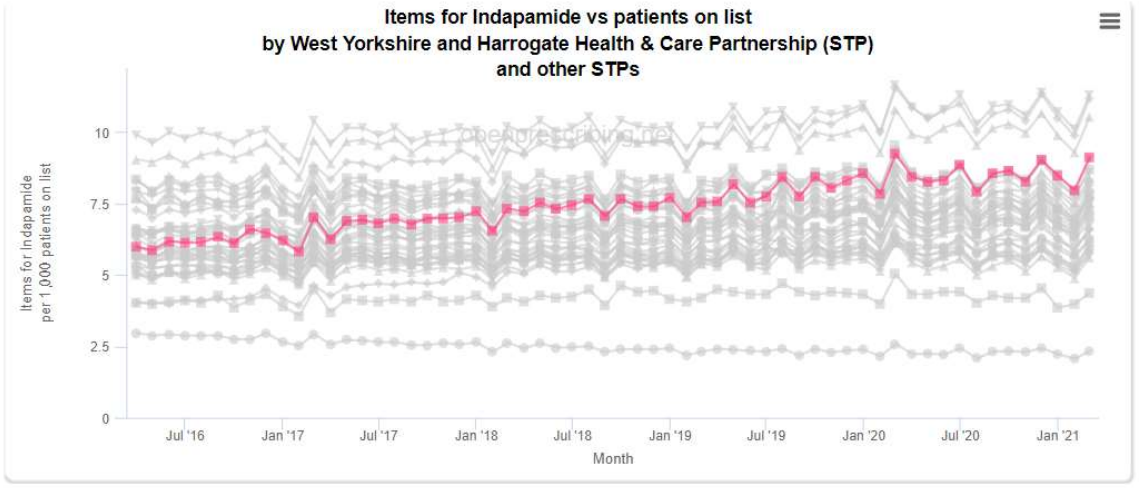
Built with Highcharts

d. Indapamide prescribing trends



'or clarity, practice graphs and maps only show standard GP practices, and xclude non-standard settings like prisons, out-of-hours services, etc.

Built with Highcharts

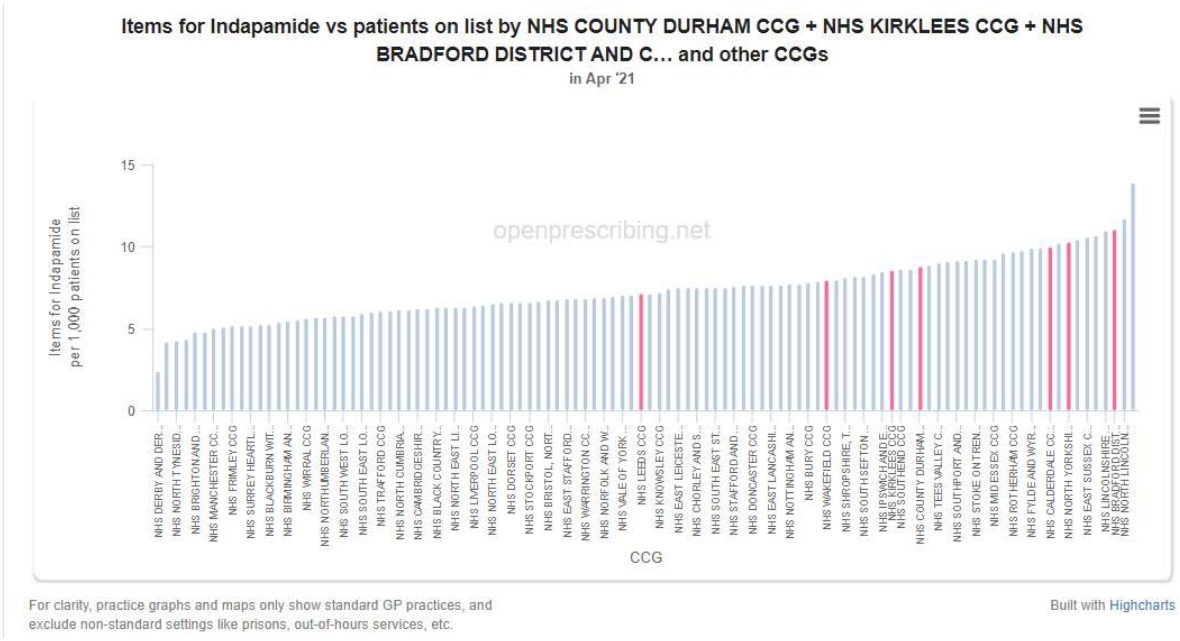


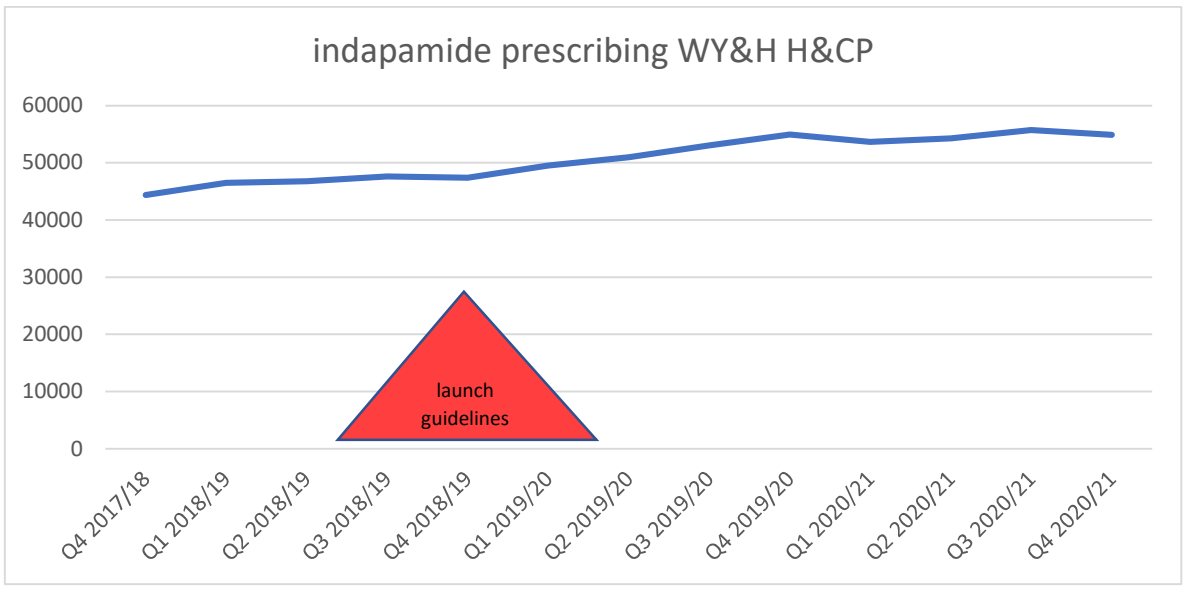
For clarity, practice graphs and maps only show standard GP practices, and exclude non-standard settings like prisons, out-of-hours services, etc.

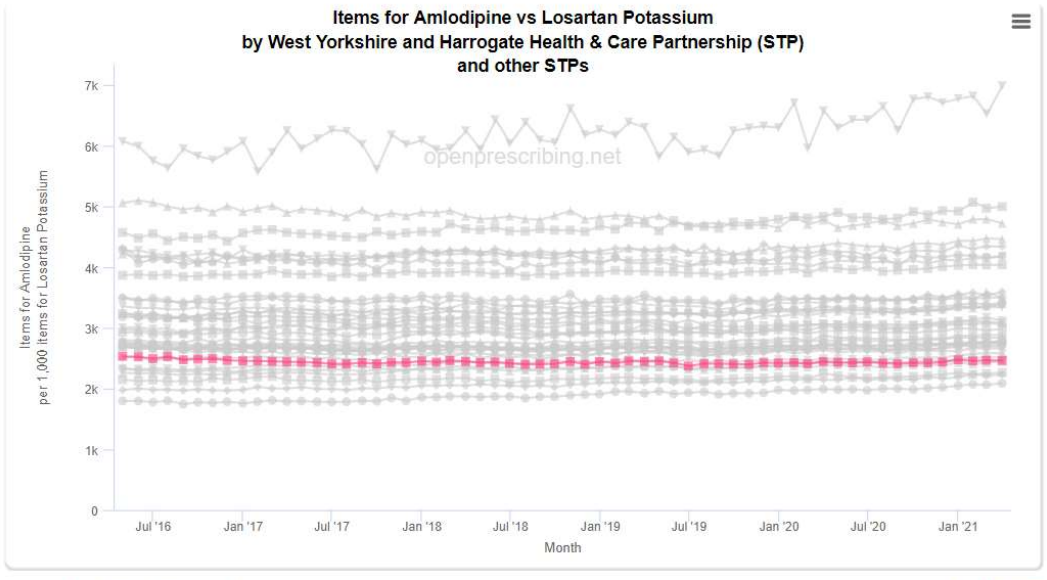
Built with Highcharts

Total prescribing for *Indapamide* across West Yorkshire and Harrogate Health & Care Partnership (STP)

	Mar '21	Financial YTD (Apr '20—Mar '21)	Last 12 months (Apr '20—Mar '21)
Cost (£)	73,180	816,890	816,890
Items	19,555	218,494	218,494


Items for Indapamide vs patients on list by NHS COUNTY DURHAM CCG + NHS KIRKLEES CCG + NHS BRADFORD DISTRICT AND C... and other CCGs
in Apr '21
Items for Indapamide per 1,000 patients on list
15
10
5
0
openprescribing.net
CCG
For clarity, practice graphs and maps only show standard GP practices, and exclude non-standard settings like prisons, out-of-hours services, etc.
Built with Highcharts


indapamide prescribing WY&H H&CP
60000
50000
40000
30000
20000
10000
0
launch guidelines
Q4 2017/18
Q1 2018/19
Q2 2018/19
Q3 2018/19
Q4 2018/19
Q1 2019/20
Q2 2019/20
Q3 2019/20
Q4 2019/20
Q1 2020/21
Q2 2020/21
Q3 2020/21
Q4 2020/21


Items for Amlodipine vs Losartan Potassium
by West Yorkshire and Harrogate Health & Care Partnership (STP)
and other STPs
Items for Amlodipine per 1,000 items for Losartan Potassium
7k
6k
5k
4k
3k
2k
1k
0
openprescribing.net
Jul '16
Jan '17
Jul '17
Jan '18
Jul '18
Jan '19
Jul '19
Jan '20
Jul '20
Jan '21
Month
For clarity, practice graphs and maps only show standard GP practices, and exclude non-standard settings like prisons, out-of-hours services, etc.
Built with Highcharts

Appendix 4: Management of hypokalaemia

	When to repeat blood test	Management
Mild (3.0 - 3.4 mmol/l)	• Compare with previous results. If no change in medication, may be one-off. Change in K+ < 0.5 mmol/L can be just standard lab variation from sample to sample (i.e. "lab error") • Continue indapamide and repeat U&Es routinely (e.g. after 4 weeks) then reassess	• If potassium still newly low on repeat and timeline fits with indapamide, can usually continue indapamide. Encourage bananas and tomatoes. Recheck U&Es periodically • If due to D&V, use sick day rules: temporarily stop indapamide and restart when better • If unrelated to indapamide and is chronic, assess for reversible causes including hypomagnesaemia. Low magnesium will make the hypokalaemia resistant to treatment. Correct any magnesium deficiency** which may sometimes correct potassium. If on digoxin, give potassium supplements and aim for K+ ≥ 4.5 long term since lower K+ levels increase the risk of digoxin toxicity (even at normal serum digoxin levels) • If no reversible causes and no concerning underlying cause, advise dietary supplementation (e.g. bananas, tomatoes, avocados, potatoes) • Recheck U&Es periodically
Moderate (2.5 - 2.9 mmol/L)	• Compare with previous results - if new change, repeat U&Es within 24 hours.	• If persistent on recheck and due to starting indapamide / thiazide, switch to ARB instead (e.g. losartan 50mg once daily [25mg daily in elderly]). • If due to D&V, use sick day rules: temporarily stop indapamide and restart when better • If no reversible causes, advise dietary supplementation (e.g. bananas, tomatoes, avocados, potatoes) AND oral supplements (e.g. SandoK® one three times daily). • Recheck U&Es in 1 week
Severe (< 2.5 mmol/L)	• Admit	• Admit

**How to correct low magnesium levels through oral supplementation:

1. First Line: Magnesium aspartate dehydrate – Magnaspartate®. 1-2 sachets daily (= 10-20mmol Mg) for 3 days
   Second Line: Magnesium glycerophosphate – YourMag®. 2 x 4mmol tablet three times a day (= 24mmol Mg) for 3 days
2. Recheck magnesium blood levels after 1-2 weeks
3. Repeat 3-day course if still low