

Impact of application of new American hypertension guidelines to a UK HIV cohort

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Background:

People living with HIV (PLWH) are at increased cardiovascular risk with international studies quoting a 1.5-2 fold relative risk compared to peers, controversially this was not validated in the UK by Q-Risk3. Hypertension (HTN) is the leading risk factor for cardiovascular disease, accounts for 6% of adult deaths worldwide and is responsible for 45% and 51% of deaths due to heart disease and stroke respectively. In 2018 the American College of Cardiology (ACC) updated guidance stating high blood pressure (BP) should be treated at a lower threshold of 130/80mmHg rather than 140/90mmHg (Table 1). This is the first reclassification of hypertension in over 20 years and UK guidelines are due to be addressed in 2019.

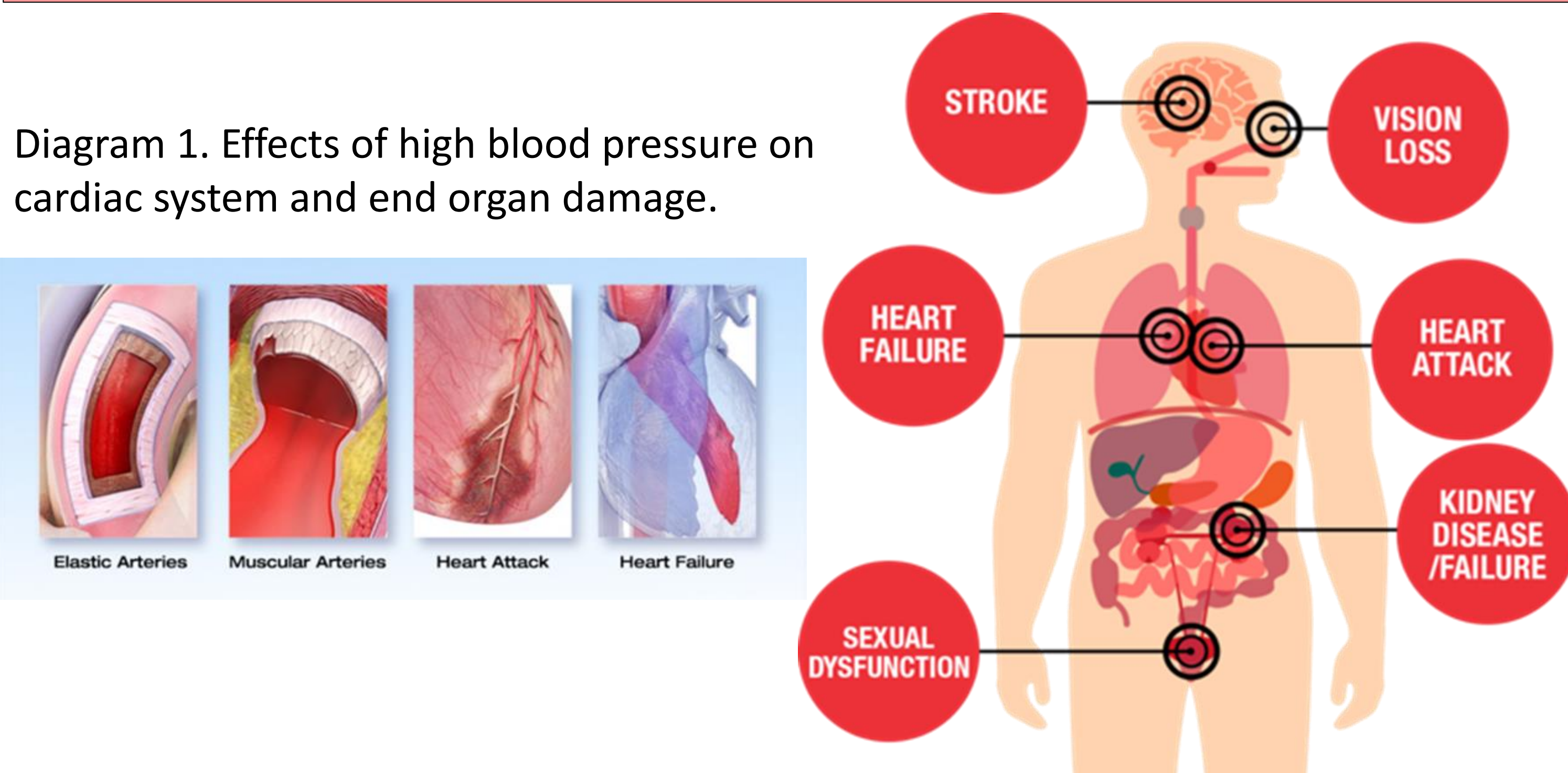


Diagram 1. Effects of high blood pressure on cardiac system and end organ damage.

Methods:

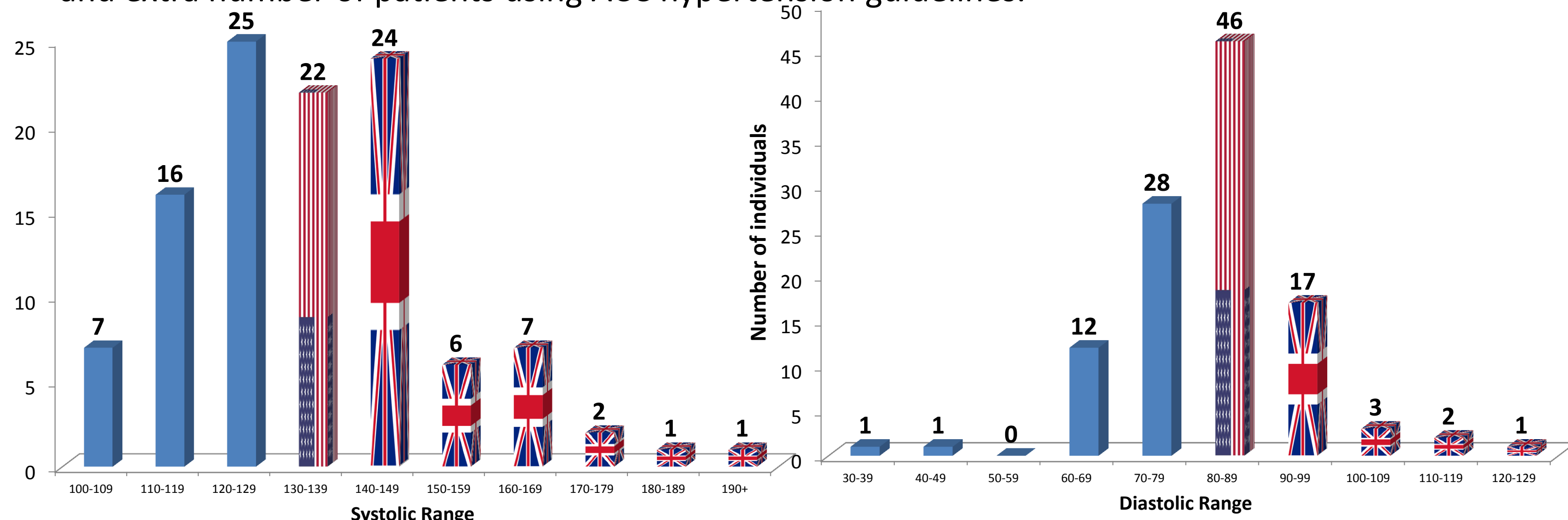
A prospective audit of patients attending a large London HIV clinic. Excluded were emergency visits, as anxiety levels may have led to an elevated BP. We retrospectively collected data on HTN medications, ART regime, creatinine, cholesterol.

Findings were presented to staff by a cardiologist, discussion, training and education were performed. We then re-audited BP, HTN control and calculated Q-Risk 2.

Table 1. New American College of Cardiology Hypertension Guidelines 2018.

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

Graph 1 and 2. Bar chart showing systolic and diastolic blood pressure distribution in our HIV cohort and extra number of patients using ACC hypertension guidelines.



Results:

Initially we collected data on 111 PLWH, female 27% (n=30), mean age 49.6yrs (SD±11.6) and mean BP 135/82mmHg (±18/12). Almost a quarter (23%, n=26) were on hypertensive medication but only 58% were well controlled. 38% of PLWH had a systolic BP>140mmHg which increased to 56% using the ACC guidelines of >130mmHg (Graph 1). Only 21% had a diastolic BP>90mmHg, this increased significantly to 63% when using >80mmHg (Graph 2).

There was no significant correlation between individual ART's and high blood pressure. Interestingly 62% of PLWH had a cholesterol > 5.0mmol/L and 82% > 4.0mmol/L.

Post feedback, 129 PLWH were audited; noted mean BP was lower: 128/78mmHg Vs 135/82mmHg, with more on BP medication: 33 (26%) Vs 26 (23%). Of those on medication only 12 (36%) were poorly controlled Vs 11 (42%) and this was despite a higher percentage of men with a older mean age (53.5 yrs ±10.9).

Q-Risk 2 data demonstrated 98 (77%) males, 76 (59%) Caucasian, 38 (30%) Black African/Caribbean. We were able to compare this to a national average for age, sex and ethnicity giving our men and women a RR of 1.58 and 2.33 respectively (Table 2).

Graph 3 and 4. Bar Charts demonstrating reduction of systolic and diastolic pressure of patients after presenting new ACC hypertension guidelines to our team.

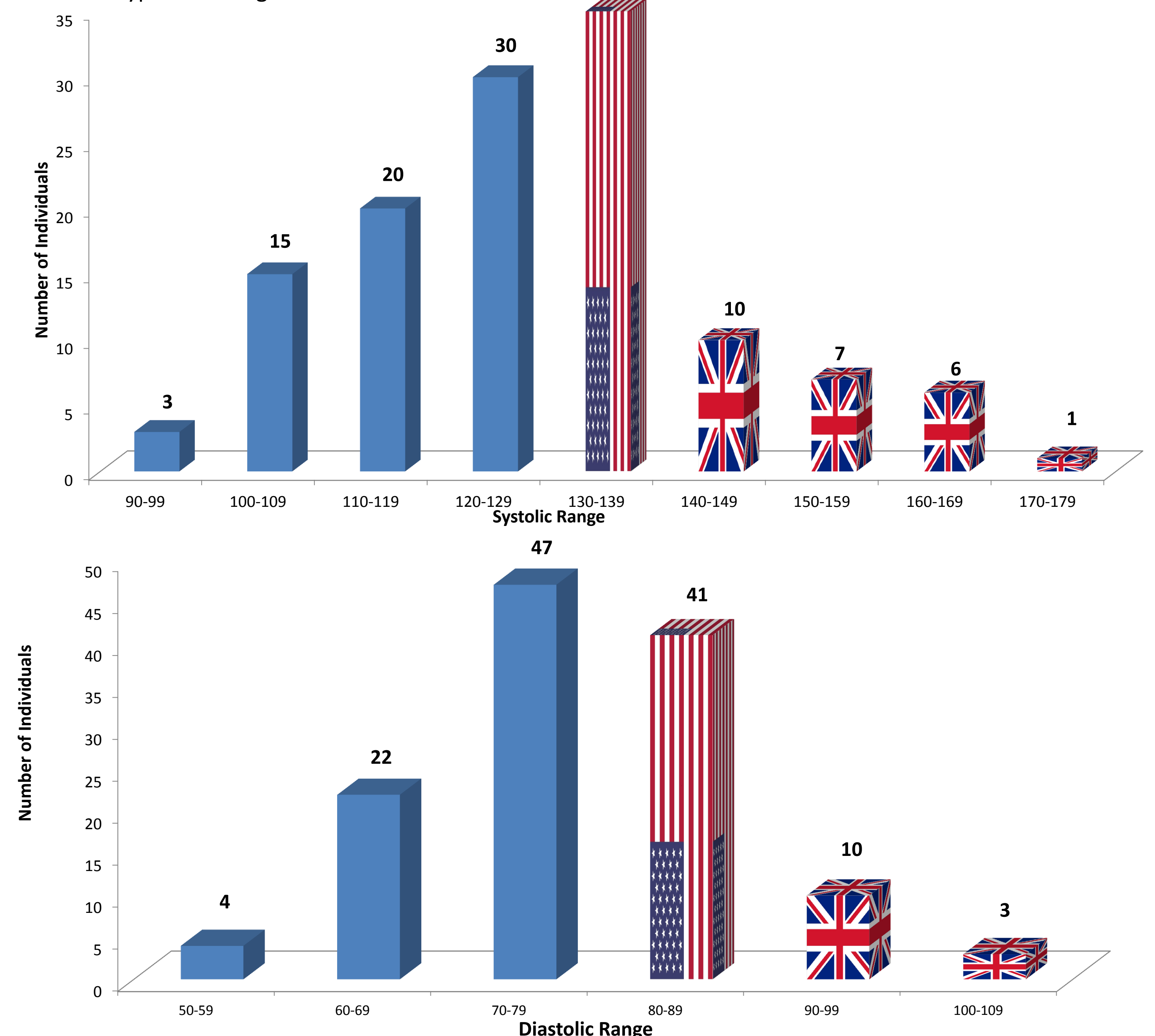


Table 2. Q-Risk 2 for people living with HIV and comparison to an age, sex, and ethnicity match using the Q-Risk algorithm

Mean Q-Risk +ve Men = 12.5% National Q-Risk 54yr Man = 7.9%
Mean Q-Risk +ve Women = 3.5% National Q-Risk 46yr Women = 1.5%

Discussion:

Hypertension is common in PLWH with estimates up to 54.4% in high-income countries. Using the ACC guidelines a significant proportion of our patients (57% and 62%) will be diagnosed with systolic and diastolic hypertension respectively, significantly higher than the nationally recorded hypertension rates of 13.8%.

We believe that in our cohort of younger people with HIV and increased cardiovascular risk, the benefits of aggressive blood pressure management is warranted. Many cardiovascular related deaths could be averted by the simple application of basic knowledge about blood pressure for which there has been broad consensus for decades.

Conclusion:

The ACC guidelines support a lower threshold for BP intervention and targets. By increasing awareness and informing staff we have been able to reduce average BP and increase adherence to current UK Guidelines.

We propose that the ACC hypertension guidelines be applied to PLWH on ART in order to reduce long term cardiovascular risk.