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Haemodialysis patients making greatest use of Renal Patient View have lower serum phosphate levels- a beneficial health outcome from patient engagement?



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1. Background:

- Renal Patient View (RPV) is an established system that gives patients with chronic kidney disease access to live test results and information about their condition and treatment.
- On evaluation, some users of RPV felt empowered by fuller more current information offered by this system.
- It has not been proven if such patient engagement translates to health care benefits.

2. Aim:

To investigate the effect of RPV on users being able to achieve better phosphate control.

3. Methods:

Retrospective observational cohort study

RPV user database extant on January 25th 2012 was linked by patient CHI / NHS number with the UK Renal Registry (UKRR).

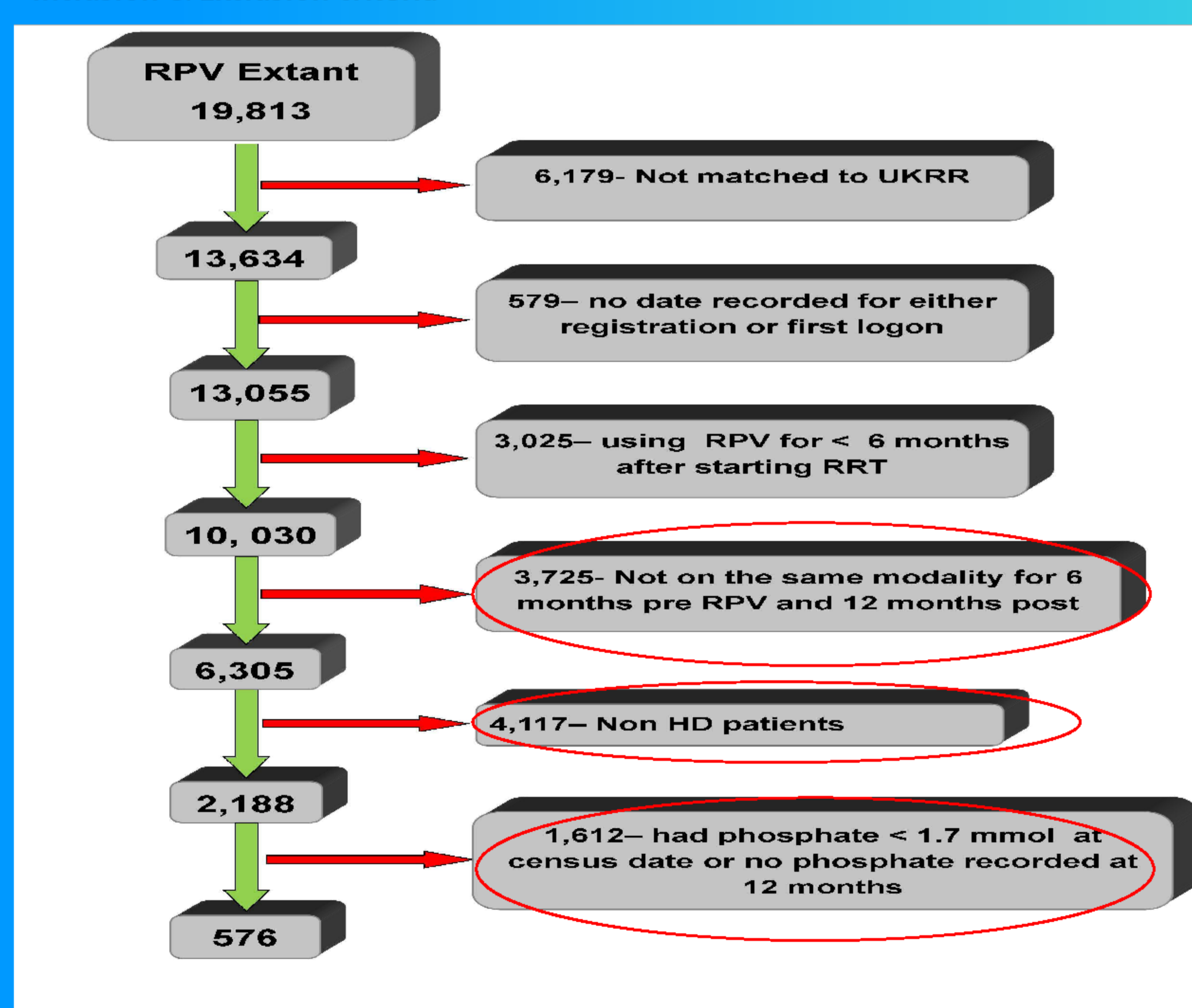
Variables: RPV: Demography, date of first logon to RPV, usage log
 UKRR: Timeline data, Date of beginning RRT, phosphate, Urea Reduction Ratio (URR), matched non RPV patients

Definition-Change scores: Phosphate measurement at 6 months before registering on RPV - Phosphate measurement at 1 year after registering on RPV.

Usage: Definition: number of logons per month in the first year after registration

RPV usage	Definition
No logons (Bottom quartile)	No logon to RPV in the 1 st year after registering
Low RPV use (Second quartile)	0 to ≤ 0.2 median logons/month
Mid RPV use (Third quartile)	0.3 to ≤ 1.4 median logons/month
High RPV use (Top quartile)	> 1.5 median logons/month

Inclusion & Exclusion criteria



Statistical analyses: 1. Done using SAS 9.3
 2. Chi-squared tests
 3. T test.

4. Results:

The groups were well matched for age, sex, ethnicity and deprivation. Non-RPV users were matched to the heavy RPV users on gender, ethnicity, age, deprivation, RRT start.

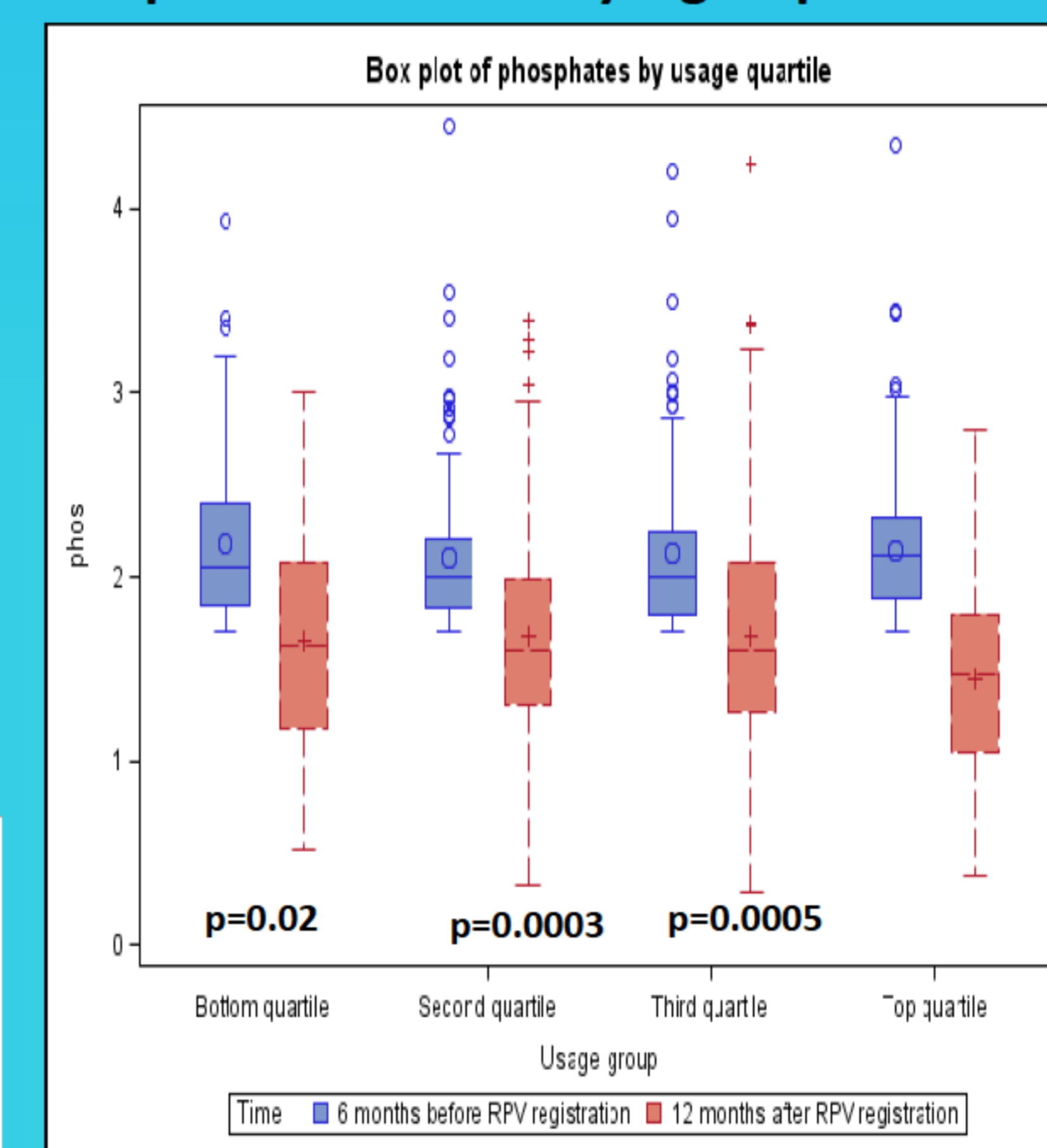
Table 1: Phosphate change score by groups

Usage group	N	Mean change	LCL	UCL	p-value from t-test to test if different from top quartile
Bottom quartile	151	-0.52	-0.63	-0.41	0.017
Second quartile	131	-0.42	-0.54	-0.31	0.0003
Third quartile	147	-0.45	-0.55	-0.34	0.0005
Top quartile	147	-0.70	-0.79	-0.6	-
Matched cohort	145	-0.47	-0.57	-0.37	0.001

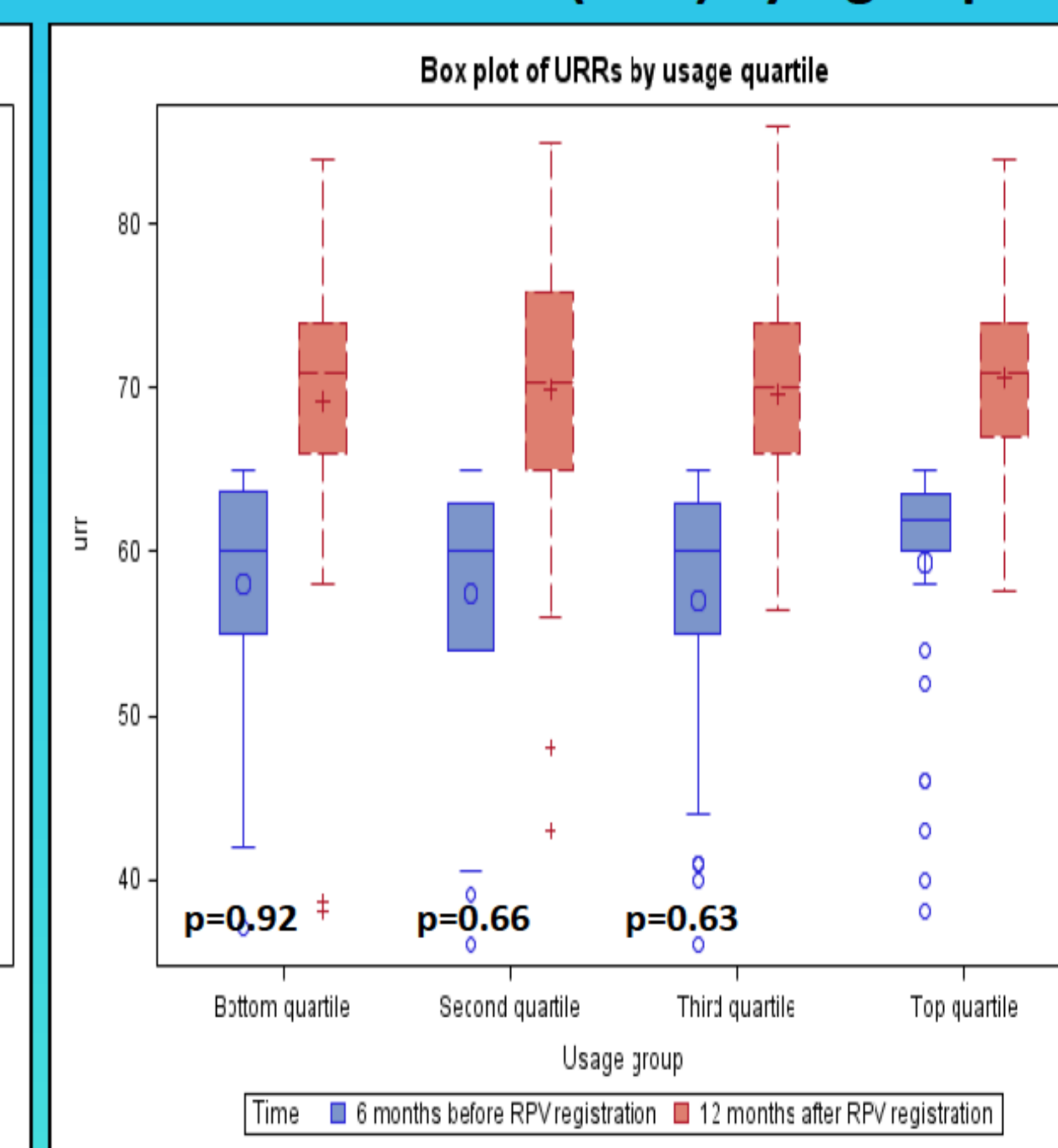
Table 2: Phosphate <1.7 at 1 year after registering on RPV by groups

Usage group	N	Mean pre RPV phosphate	N	%	Chi-squared p-value comparing to top quartile
Bottom quartile	151	2.18	81	53.6	0.008
Second quartile	131	2.1	81	61.8	0.23
Third quartile	147	2.12	83	56.5	0.03
Top quartile	147	2.15	101	68.7	-
Matched cohort	145	2.15	86	59.3	0.066

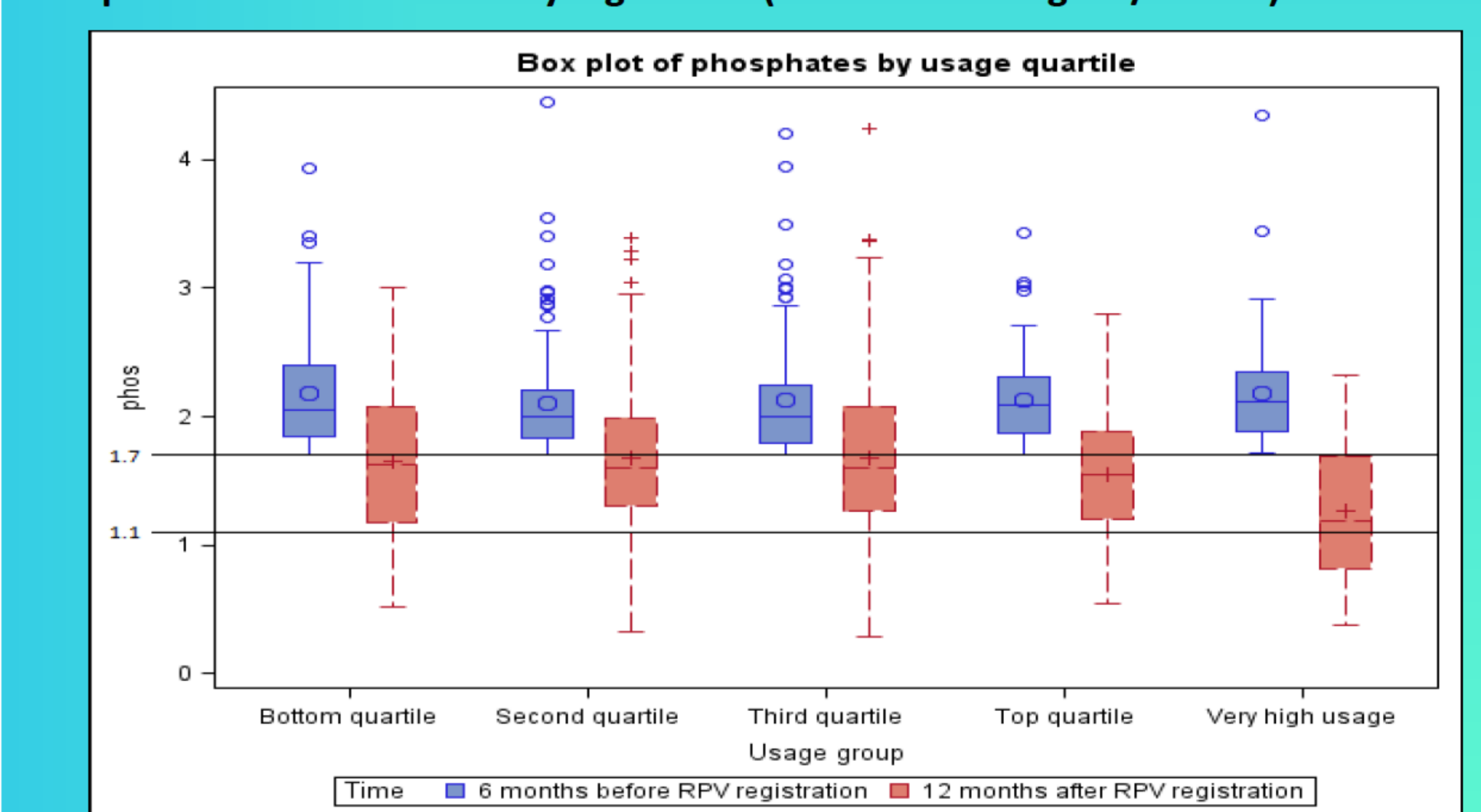
Phosphate reduction by 4 groups:



Urea Reduction Ratio (URR) by 4 groups:



Phosphate reduction with very high users (> 4.0 median logons/month)



5. Strengths & Limitations:

Strengths: 1. RPV attracts strong and sustained use by many renal patients in the UK.
 2. Fertile ground for future studies.

Limitations: 1. Results might not be generalizable to the wider RRT population.
 2. Difficult to tease out if this is a true effect of RPV.

6. Conclusion:

1. There is an association between greater utilisation of RPV and greater phosphate lowering which is mainly patient led parameter.
2. No association between RPV usage and URR suggesting that in a physician led change patient interaction has no significant impact.
3. Patients with most frequent RPV login (over zealous use) demonstrated reductions in phosphate to levels below the lower limit of the target range.
4. Difficult to tell if the difference is due to RPV use, or RPV use is a marker for a patient personality or deprivation.

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