

Figure 1: Trends in imaging for uLMS PCI in England and Wales 2007-2014. Left panel - Percentage of intravascular imaging use during unprotected LMS-PCI (p-value<0.001 for trend comparison); Right panel - Temporal change in intravascular ultrasound (IVUS) vs. optical coherence tomography (OCT) use during uLMS-PCI.



**Figure 2: Operator volume and intravascular imaging use.** Percentage of use during uLMS-PCI in England and Wales 2007-2014 presented by quartiles of operator uLMS-PCI volume indicating an increase in imaging use from Q1 to Q3 and a drop in use in Q4.



**Figure 3: Survival by intravascular imaging use after unprotected LMS-PCI in England and Wales 2007-2014.** Kaplan-Meier curves of 12-month mortality categorised by intravascular imaging use or not.

Subgroup	Count	Imaging N (%)	No Imaging N (%)	Odds ratio (95% CI)	Odds ratio (95% CI)	Interaction p-value
Overall	7864	335 (9.01%)	538 (12.98%)	0.663 (0.574:0.766)	-	
Quartiles						0.0351
Q1	1281	75 (19.41%)	103 (16.32%)	0.669 (0.485:0.921)		
Q2	1206	60 (10.87%)	75 (11.47%)	0.941 (0.657:1.35)		
Q3	1121	52 (9.89%)	92 (15.46%)	0.6 (0.417:0.862)		
Q4	1192	32 (5.07%)	65 (11.59%)	0.408 (0.263:0.633)		
ACS						0.4058
No	3516	91 (5.21%)	120 (6.78%)	0.757 (0.572:1.002)		
Yes	4346	244 (12.35%)	418 (17.63%)	0.669 (0.555:0.781)	-	
Left Main + LAD						0.048
No	3889	157 (9.33%)	261 (11.83%)	0.768 (0.623:0.946)	-	
Yes	3975	178 (4.48%)	277 (14.3%)	0.574 (0.47:0.7)	-	
EF < 30						0.3585
No	4471	187 (8.25%)	225 (10.2%)	0.792 (0.646:0.97)	-#-	
Yes	583	55 (20%)	83 (27.92%)	0.645 (0.439:0.95)		
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					0.5 1 2 3 5	

**Figure 4: Sub-group analysis of 12-month mortality by imaging use.** Forest plot of 12-month survival by imaging use in study sub-groups of operator volume, clinical presentation, ejection fraction and left main anatomy.



**Figure 5: Optical coherence tomography during LMS-PCI.** Panel A and D: Pre-PCI angiography and OCT indicating severe distal LMS disease and a minimal luminal diameter of 3.6mm<sup>2</sup>; Panel B and E: After post-dilation with a 4.0mm balloon, although angiography demonstrates an apparently good result, OCT demonstrates significant stent malapposition (white arrows); Panel C and F: After post-dilation with a 4.5mm balloon, although the angiogram appearances are unchanged, OCT confirms complete stent apposition (white arrows).