

# 16.6% (1 in 6) patients who continued insulin at the time of exenatide start came off insulin in the Association of British Clinical Diabetologists (ABCD) Nationwide Exenatide Audit

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## Introduction

In December 2008, ABCD conducted a nationwide audit on exenatide in real life clinical practice. 315 contributors from 126 centres participated. Although exenatide is not licensed for use with insulin, many contributors used the combination in the audit. Patients who stopped insulin when trialling exenatide often have worsening glycaemic control[1]. We evaluated the likelihood and factors associated with coming off insulin if insulin was continued at exenatide start.

## Methods

- Patients in the audit were divided based on details of insulin treatment at baseline and end of the audit.
- Among patients who continued insulin, baseline and latest HbA1c and weight between patients who remained on insulin and patients who eventually came off insulin were compared using paired t-tests.
- Differences in baseline characteristics between these two groups were compared using unpaired t-tests for continuous variables and Chi-square test for gender.
- Logistic regression was performed to identify factors that were independently associated with coming off insulin.

## Results

### Patient numbers

From 6717 patients, 1670 patients were on insulin at exenatide start and 1257/1670 (75.3%) had their insulin continued. At a median follow up of 26.3 weeks, 1048/1257 patients remained on insulin, while 209/1257 (16.6%) came off insulin (Fig. 1).

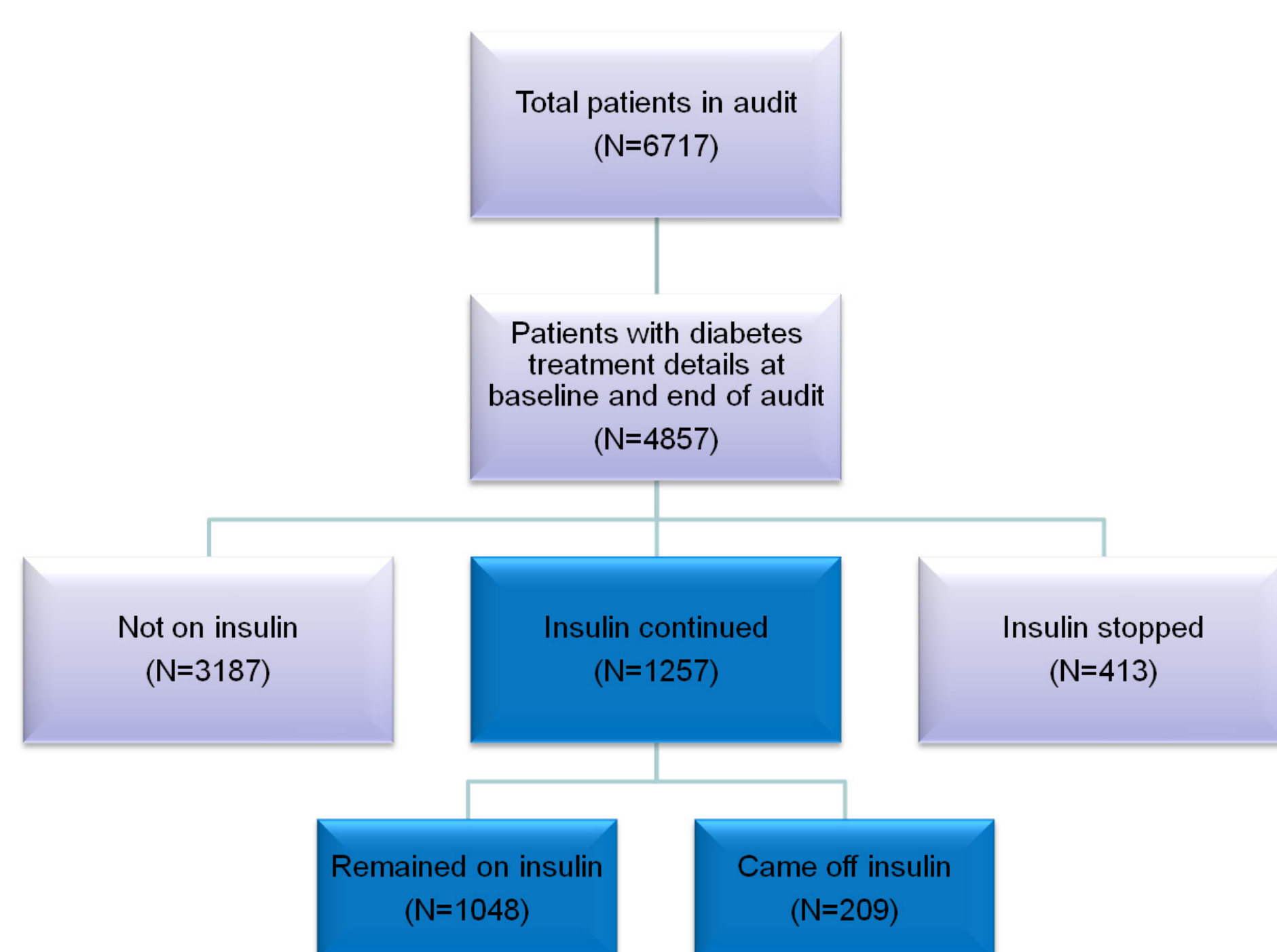


Fig 1: Distribution of patients according to insulin use in the audit

## Patient characteristics

Baseline characteristics of patients remaining on, and coming off insulin are shown in Table 1. Patients who came off insulin were more likely to have a shorter diabetes duration and have a lower total daily insulin dose.

Table 1: Baseline characteristics of patients who continued insulin

	All insulin continued n = 1257	Remained on insulin n = 1048	Came off insulin n = 209	Overall P value
Female %	51.2	51.6	48.8	0.457
Age (yrs) <sup>a</sup>	55.3 (10.3)	55.5 (10.4)	54.7 (9.9)	0.329
Diabetes duration (yrs) <sup>a</sup>	12.2 (6.4)	12.4 (6.4)	11.2 (6.4)	0.025
HbA1c (%) <sup>a</sup>	9.55 (1.70)	9.60 (1.67)	9.32 (1.84)	0.088
Weight (kg) <sup>a</sup>	112.8 (22.5)	112.3 (22.7)	114.9 (21.7)	0.211
BMI (kg/m <sup>2</sup> )	40.3 (7.5)	40.1 (7.2)	41.4 (9.1)	0.224
Total insulin dose (U/day)	120 (99)	124 (91)	103 (131)	0.042

<sup>a</sup>Values are mean (SD)

## HbA1c and weight results

Patients who came off insulin achieved similar HbA1c reduction compared with those who remained on insulin with mean ( $\pm$ SE) HbA1c of  $0.49 \pm 0.17\%$  v  $0.51 \pm 0.06\%$  (mean difference,  $p=0.927$ ). Patients who came off insulin achieved greater weight loss of  $8.8 \pm 0.7$  kg v  $5.2 \pm 0.3$  (mean difference,  $p<0.001$ ) (see Fig. 2 and 3).

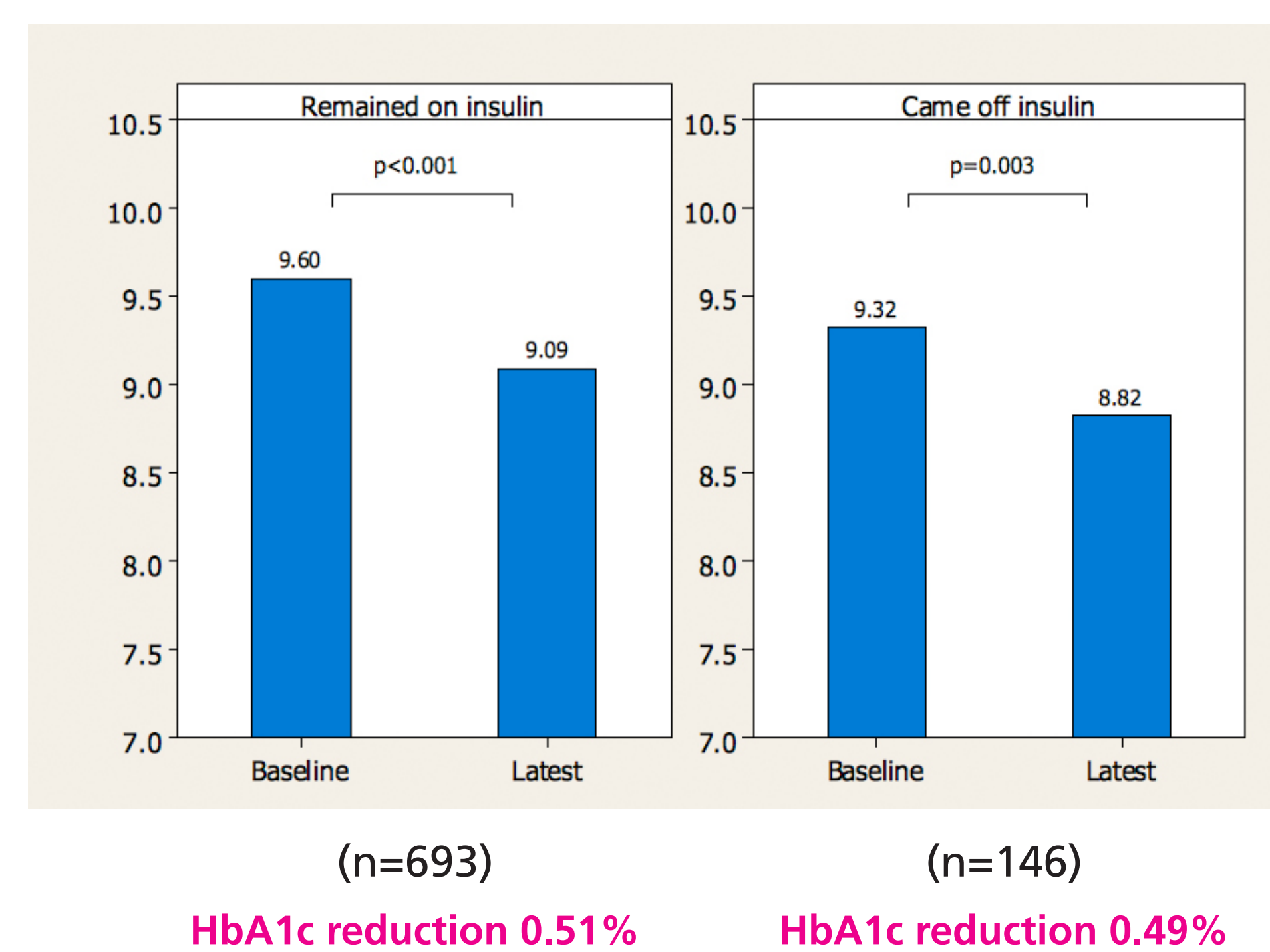


Fig 2a: Baseline and latest HbA1c among patients who continued insulin

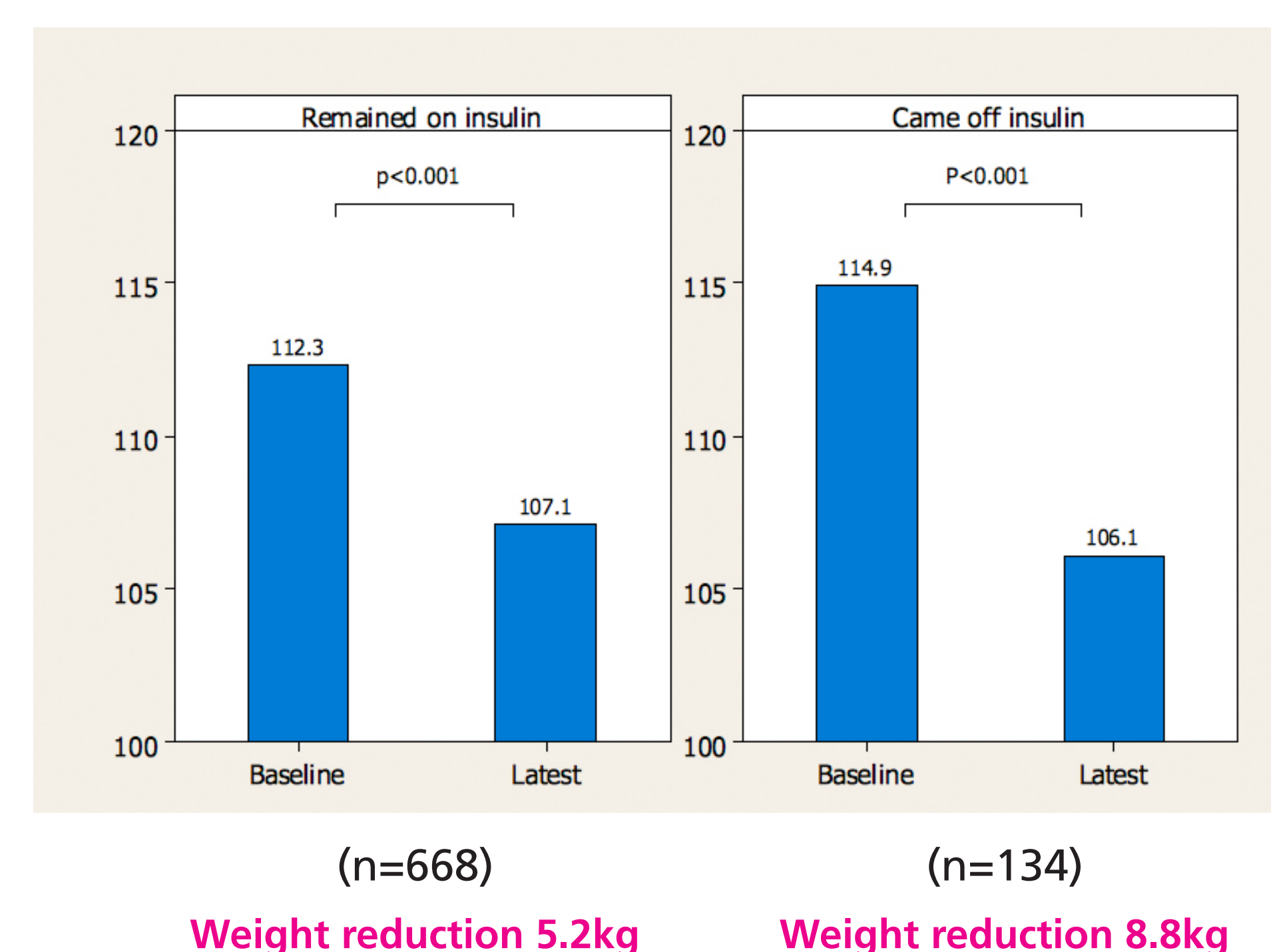


Fig 2b: Baseline and latest weight among patients who continued insulin

## Factors associated with coming off insulin

Factors that were independently associated with patients coming off insulin were a higher weight loss ( $p<0.001$ ) and lower total daily insulin dose ( $p<0.001$ ) (table 3). Insulin doses were transformed logarithmically due to a skewed distribution.

Table 2: Logistic regression analysis of factors associated with coming off insulin

	Odds Ratio	95%CI		P value
		Lower	Upper	
Baseline HbA1c	0.89	0.76	1.05	0.183
HbA1c change	0.96	0.81	1.13	0.587
Baseline weight	1.01	1.00	1.02	0.226
Weight change	1.10	1.06	1.14	<0.001
(Log) Total daily insulin dose	0.51	0.36	0.72	<0.001
Male gender	1.46	0.88	2.43	0.145
Age	0.99	0.97	1.02	0.562
Diabetes duration	0.98	0.94	1.02	0.223

## Discussion

- Greater weight loss was likely caused by, rather than predictive of, coming off insulin
- Smaller insulin dose was associated with successfully coming off insulin rather than HbA1c reduction per se
- We have also previously reported that patients on smaller insulin dose have better HbA1c outcome when insulin was stopped at exenatide start as compared with patients on higher doses[1].

## Conclusion

- 16.6% (1 in 6) patients who continued insulin at the time of exenatide start managed to come off insulin in the ABCD Nationwide Exenatide Audit.
- A lower total daily insulin dose predicted the likelihood of coming off insulin when starting exenatide in obese, insulin-treated patients.

## Acknowledgment

This audit was independently initiated by ABCD and supported by a grant from Eli Lilly Ltd. The authors remained independent in the analysis of the data and the writing of this report.

## References

1. Thong KY, Ryder REJ, Jose B, *et al.* Response at 3 months to insulin dose decisions made at exenatide initiation in the Association of British Clinical Diabetologists (ABCD) nationwide exenatide audit [Abstract 74]. *Diabetologia* 2010; 53 S38