

IDEAS Trial: Incentives in Diabetic Eye Assessment by Screening

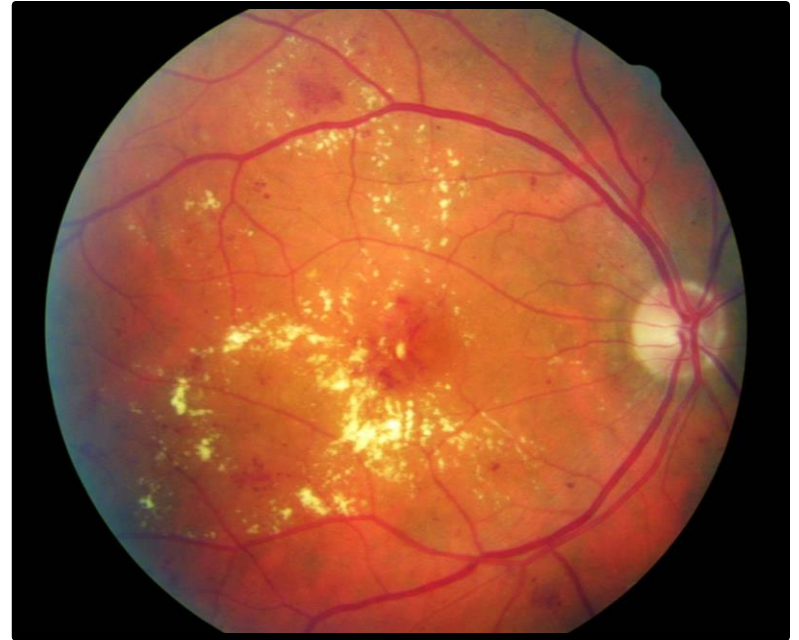
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Retinopathy screening programme

- National Screening programme implemented in England between 2003 and 2006
- Annual retinal photographic screening for those with diabetes, aged ≥ 12 years
- UK programme uptake: 81%
- Large variability in uptake – 7.4%-91.8% (2011)
- Excluding 5 PCTs with highest and lowest rates, range: 57.7% - 87.0%



Inequalities in care

- Low uptake in areas with greatest socioeconomic deprivation (and disease risk) (Scanlon 2008)
- Screening programmes may exacerbate inequalities in disease complications.



**The challenge for screening programmes:
To find effective, simple and inexpensive population-
wide strategies to recruit hard to reach individuals.**

A solution? Financial incentives

- Changing behaviour: intentions poor predictor of behaviour (Webb & Sheeran 2006)
- Incentives can align behaviour with intentions (Marteau 2009)
- Technique used in: exercise, smoking cessation, cervical/breast screening
- Better at encouraging infrequent as opposed to frequent behaviours (e.g vaccinations vs exercise) (Sutherland 2008, Mantzari 2015)
- **May improve screening uptake**

A solution? Financial incentives

- Acceptability: often supported if effective and cost-effective (Giles 2015)
- Can reduce inequalities (Oliver 2009)
- More research needed in hard-to-reach populations
- **Behavioural economics can inform incentive design: Prospect Theory (Kahneman & Tversky 2000)**

Aims

1. Are incentives an effective strategy to encourage participation in the screening programme?
2. Does the design of the financial incentive scheme affect its effectiveness in influencing participation in health screening?
3. Does the choice of incentive scheme, if successful, attract patients who have a different demographic or socioeconomic status to those who attend screening regularly?
4. Is offering these incentives a cost-effective strategy for enhancing participation?

Study design

RCT of Diabetic Eye Screening cohort testing two incentive schemes

Control: Usual invitation letter

Fixed incentive: Usual letter plus voucher for £10 if attend

Lottery incentive: Usual letter plus voucher for lottery with 1 in 100 chance of £1000 if attend

Inclusion criteria:

- Patients invited to screening in previous 24 months who did not attend, and have not contacted the screening service to rearrange appointment. (DNR cohort)
- Aged 16 or over
- In geographical area (Kensington, Chelsea and Westminster – London)

Randomise at 1.4:1:1. (1000 total)

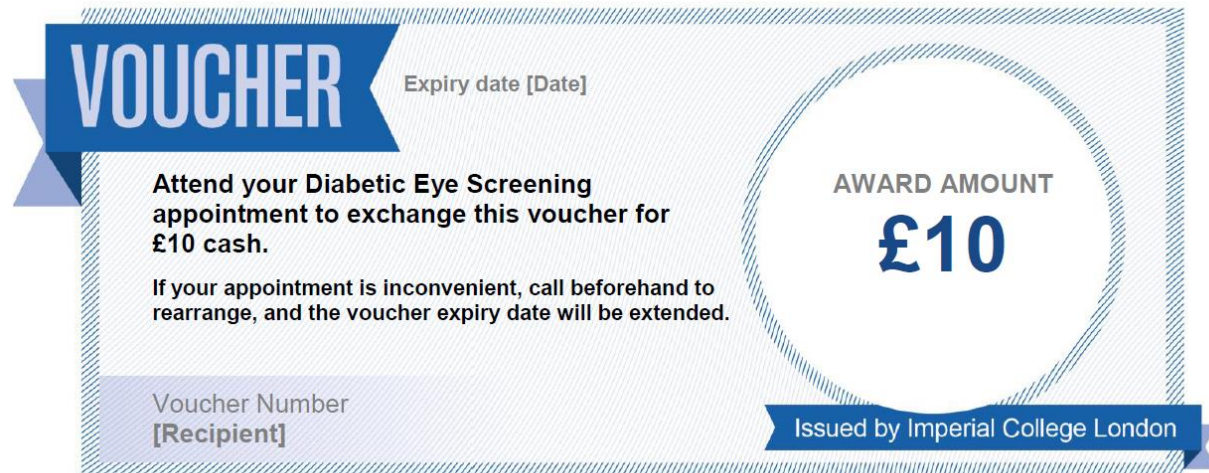
Reliability checks

- Population checked against patient register immediately prior to invite
- Eligibility and address confirmed by GP
- At least 2 month gap between usual care letters and trial invitation letter.

Intervention – Fixed incentive

Justification:

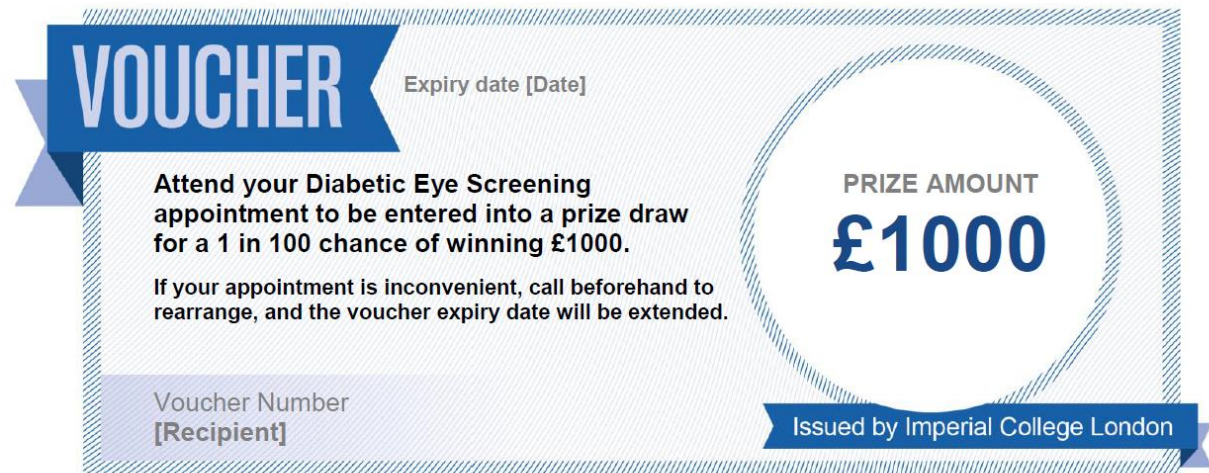
- Reference points – offering small incentive effective at changing behaviour, but increasing incentive value has little effect
- Value chosen to compensate opportunity cost to patient of time or travel



Intervention – Lottery incentive

Justification:

- Overweighting of small probabilities (popularity of lotteries/insurance).
- Given fixed resources in scheme, lottery more effective than smaller individual rewards (Volpp 2011)



Participants

- 1274 eligible and randomised
- 223 became ineligible (mainly as attended regular appointment)
- 1051 participants sent invitation letters:
 - 435 in control group,
 - 312 in fixed incentive group
 - 304 in lottery incentive group
- No significant differences in demographic factors between groups

Participant characteristics

Age	
16-25	12 (1.14%)
26-35	37 (3.52%)
36-45	113 (10.75%)
46-55	181 (17.22%)
56-65	235 (22.36%)
66-75	237 (22.55%)
76-85	173 (16.46%)
≥86	63 (5.99%)

Gender

Male: 58%

Female: 42%

Years registered

Mean: 6.0 years (SD 2.17)

Participant characteristics

IMD Decile	
Most deprived - 10	182 (17.32%)
20	251 (23.88%)
30	227 (21.6%)
40	184 (17.51%)
50	148 (14.08%)
60	59 (5.61%)

Attendance: incentive groups combined

Treatment Group	Number attending screening	Attendance rate	Relative risks (95% CI)
Control (N=435)	34	7.82%	
Combined incentive (N=616)	27	4.38%*	RR=0.56 0.34, 0.92
Total	61	5.80%	

Those in incentive group (combined) 44% less likely to attend than controls

- Findings opposite to first hypothesis
- Incentives not effective at promoting attendance, and associated with *lower* attendance rates

Attendance: incentive groups separate

Treatment Group	Number attending screening	Attendance rate	Relative risks (95% CI)
Control (N=435)	34	7.82%	
Fixed incentive (N=312)	17	5.45%	RR=0.70 (0.40, 1.23)
Lottery incentive (N=304)	10	3.29%*	RR=0.42 (0.21, 0.84)

- Those in lottery group 58% less likely to attend than controls.
- No sig differences comparing fixed incentive vs controls, or fixed vs lottery incentive

Demographic comparison

- Demographic factors:
 - Gender
 - Age (≤ 65 vs. > 65 years)
 - Deprivation by IMD decile (10th-30th vs. 40th-60th)
 - Distance from screening centre
 - Years registered
- No sig diffs between attenders vs. non-attenders
- No sig diffs between control vs. incentive attenders
- Additional management required: no sig diffs between control vs incentive attenders

Interpretation

- Low attendance rates as hard-to-reach population
- Incentive offer may evoke feelings of dread/fear, reinforce mistrust of screening
 - supported as lottery incentive for £1000 associated with lower attendance
- Incentive voucher may have looked like junk
- Study assessing predictors of retinopathy screening in USA found that patient and provider incentives associated with lower attendance (Hatef 2014)

Reasons for non-attendance?

- Attenders asked for reasons why they had not attended for a while
- Responses categorised as:
 - Organisational problems (e.g. forgot) – 60%
 - Practical/logistical (e.g. family commitments) – 20%
 - Did not think needed to come (e.g. thought optician did it) – 20%

Conclusions

- Incentives not effective at promoting retinopathy screening attendance – led to lower attendance
- Lottery incentive in particular was detrimental to screening attendance
- Attendance not associated with demographic factors
- Not cost effective!
- Different methods are needed to increase screening attendance
- Should not assume incentives work without testing in context (incentive, population, behaviour)

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IDEAS trial team

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- Patient Representative: Elizabeth Pigott



1st Retinal Screen Ltd



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Thank you!

Questions?

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