The OPIC Project: Obesity Prevention In Communities

A youth focused school-based obesity prevention study

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The Pacific OPIC Study

A four country study of Obesity Prevention In Communities

NZ Research Team

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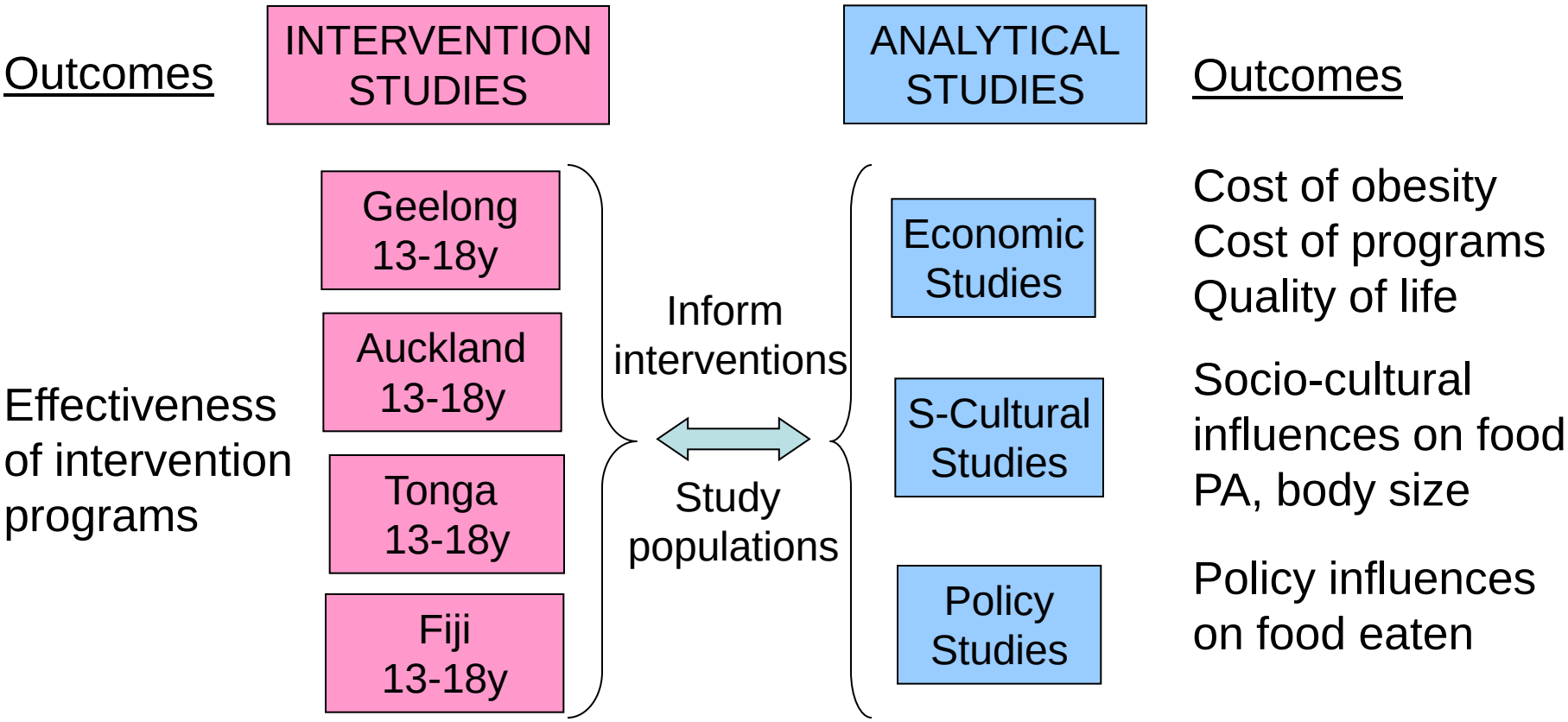
  - National Health & Medical Research Council (Aus)
  - Health Research Council (NZ)
- Countries
  - Australia (Deakin University, Victoria)
  - New Zealand (University of Auckland)
  - Tonga (Ministry of Health)
  - Fiji (Fiji School of Medicine)

Rationale

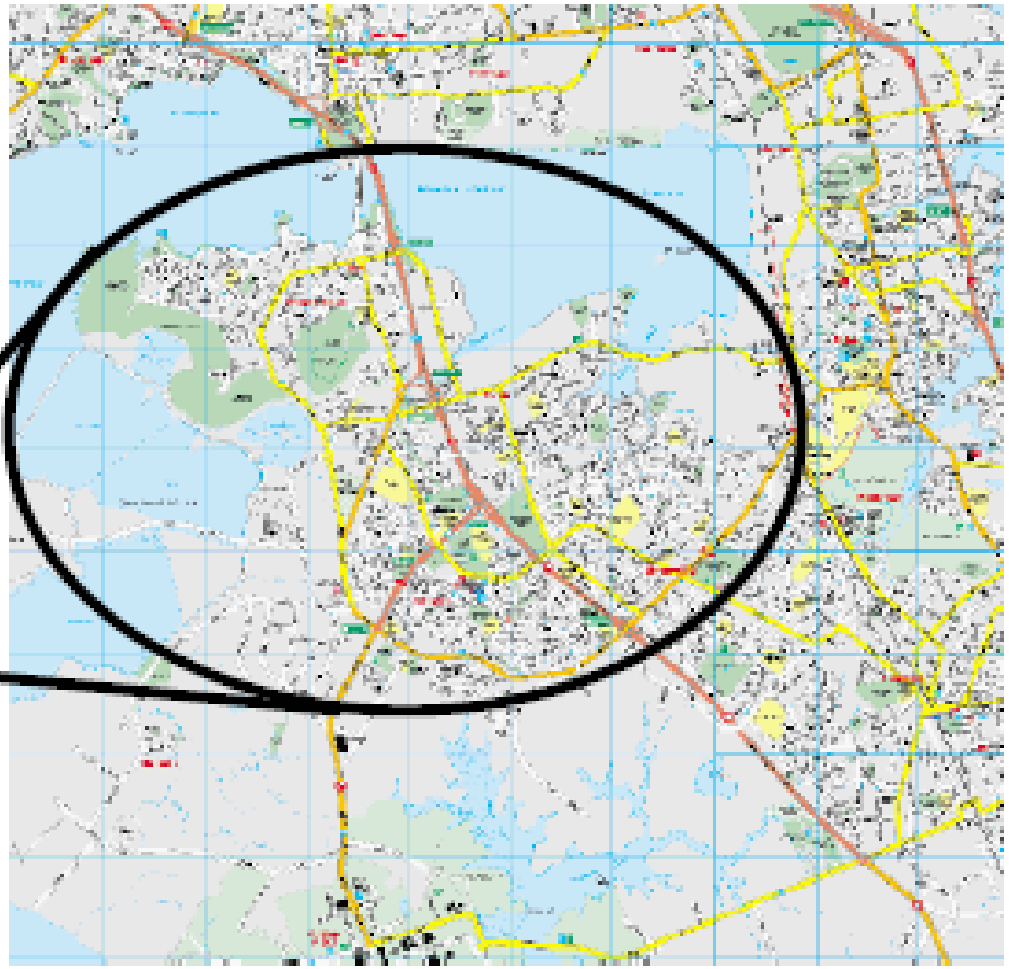
- Pacific populations have the highest obesity rates worldwide
- Many young people are facing the health issue of overweight and obesity
  - 2002 Children's Nutrition Survey overweight and obese of Pacific Pacific (ages 5-14 yrs) 33% vs 17% NZEO
- Very little evidence of what works and what doesn't work
- Need community-based approaches to prevent obesity urgently required

Pacific OPIC Structure



New Zealand Site

Mangere, South Auckland



School Intervention decided at Community Meeting in 2004

- Attended by:
  - Teachers & students from intervention schools
  - Local churches
  - Local & Central Government
  - Funders & Providers of obesity prevention programs
- Process
  - Inform meeting about main causes of obesity
  - Meeting decided the action plan for the intervention

Main study

- High schools
  - Intervention in Mangere area
  - Control from other parts of South Auckland
- Baseline measurements in 2005 (terms 1 & 2)
  - Eg. weight, height, food and activity questions
- Interventions implemented during 2006-08
- Follow-up measurements
  - One occasion for each student
  - until 2008/09

Main causes of obesity

results from 2002 national children's nutrition survey

- Physical inactivity
- Missing breakfast
- Missing lunch
- Purchasing school food from dairy
- Soft drinks (eg. coke, sprite)
- Watching TV

MOH. (2003). *NZ Food NZ Children: Key Results of the 2002 National Children's Nutrition Survey. Wellington*

School intervention Objectives

- Reduce consumption of sugar sweetened beverages
- Increase consumption of breakfast eating
- Increase physical activity before and after school
- Improve the quality of foods sold at school
- Decrease television use

School interventions

1. Significantly ↑ the proportion eating breakfast before school
   - Social Marketing (SM) with students & parents (S+P), school breakfast options

2. Significantly ↓ high sugar drinks and promote water consumption
   - SM (S+P), water policies, soft drink & vending machine policies, water fountains, canteen menu

School interventions

3. Significantly ↑ the healthiness of school food consumption
   - Food/nutrition policies (& enforcement), contracts with canteen providers, NHF HB Awards, SM (S+P)

4. Significantly ↓ recreational screen time
   - Curriculum, events, SM (S+P)

5. Significantly ↑PA at lunchtime and after school
   - Programs, links with clubs & RST, PA policies, volunteer recruitment, SM (S+P)

New Zealand OPIC Study

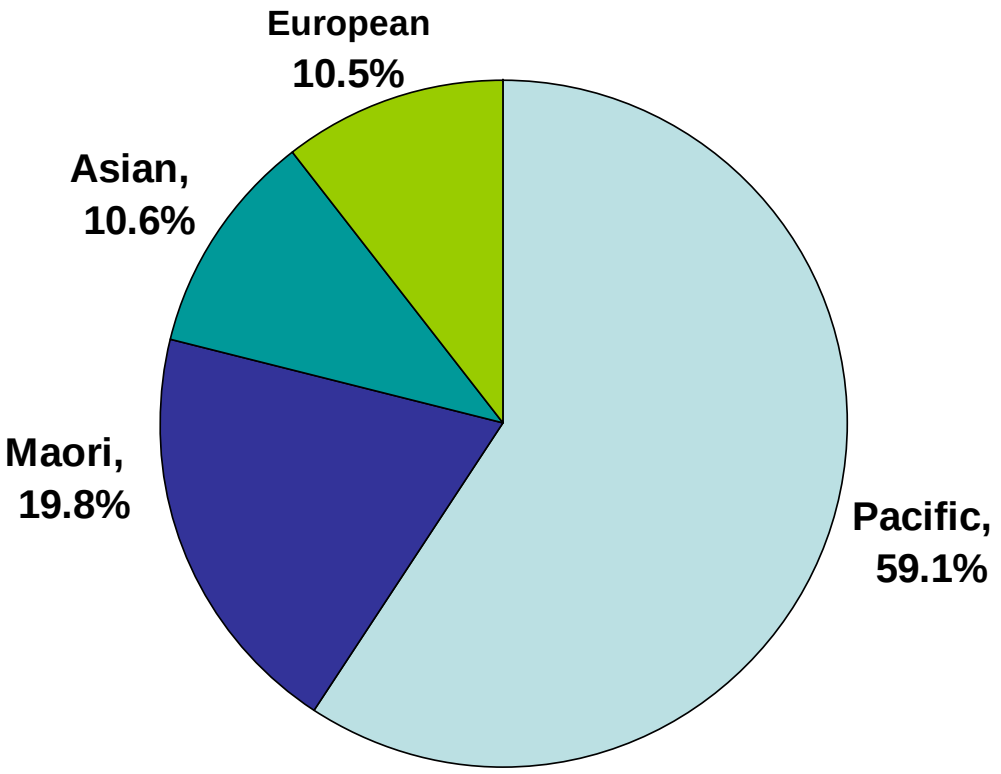
- 4 intervention schools & 2 control schools South Auckland region, low SES communities

- 2005 baseline cross-sectional surveys & measurements completed
  - Eg. anthropometry, food, leisure & physical activity, body image, family, home, school, neighbourhood environment, quality of life questions

  - Information collected from n=*17,150* high school students. Fiji (n=7237), **New Zealand (n=4215),** Australia (n=3163) & Tonga (n=2535)

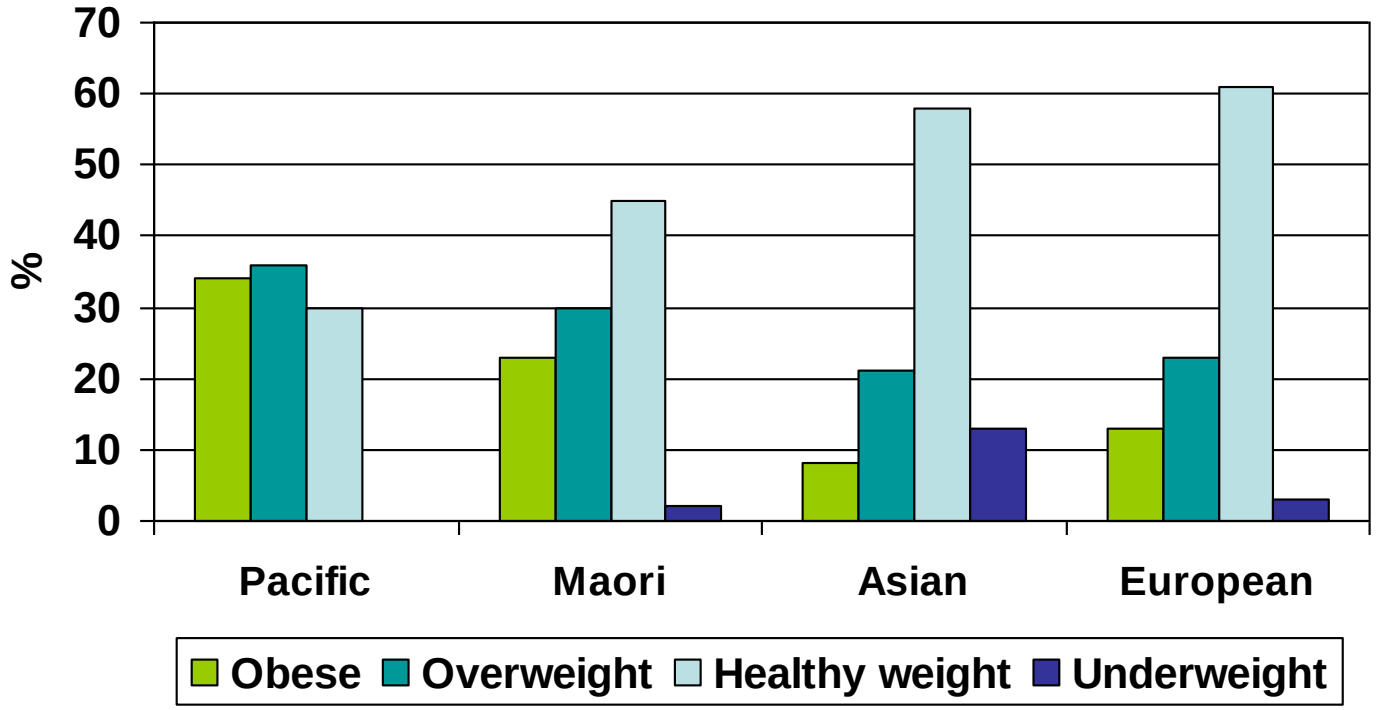
Baseline demographics

- Sample size *n* = 4215
- All students Years 9-13
- Ages 13-17
- 52% ♀ 48% ♂
- Ethnicity ~90% non-European
- 66% response rate



Baseline weight status by ethnicity

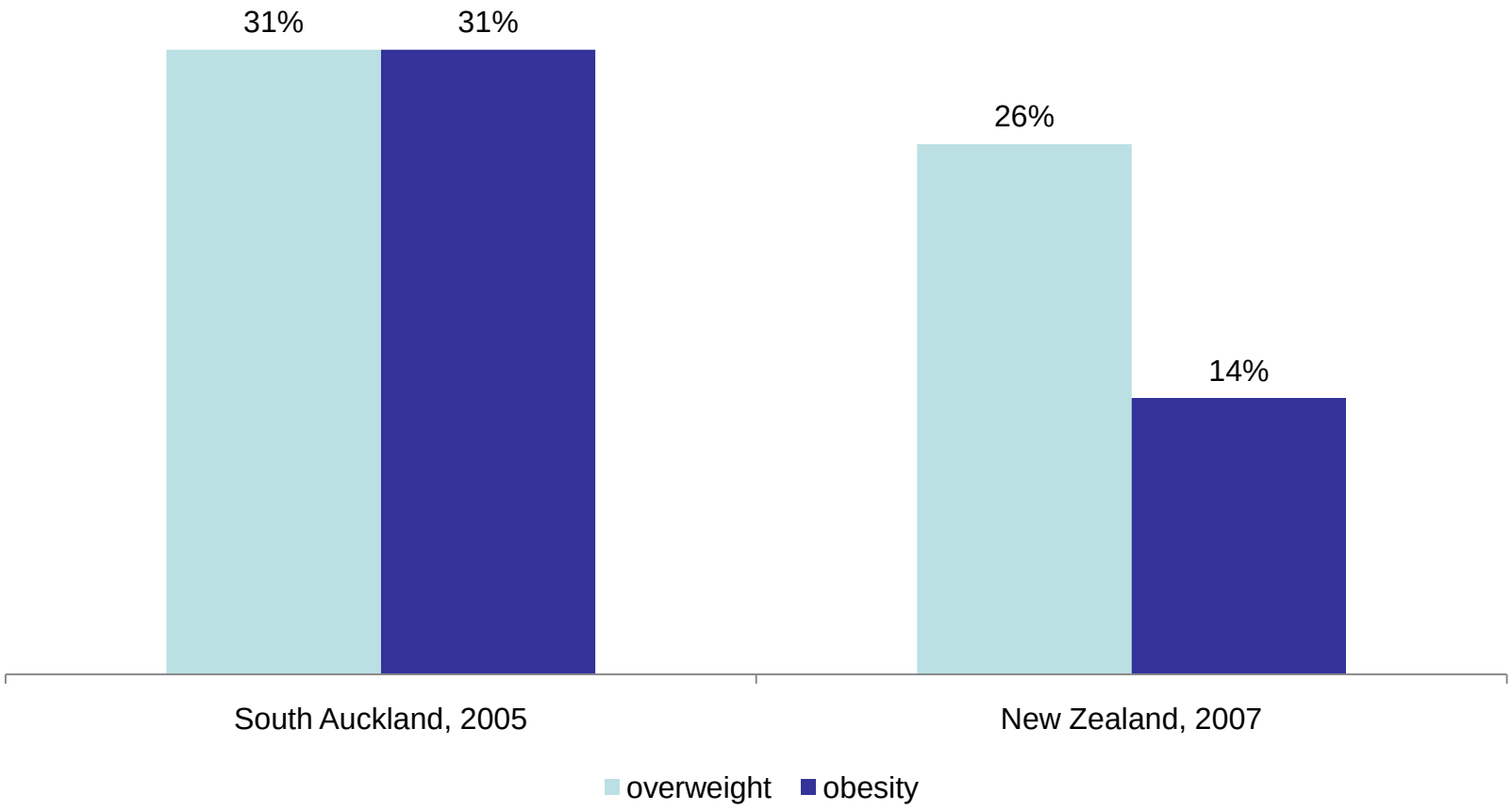
Total sample size *n* = 4215



BMI measured using Cole criteria: Cole, T. J., et al., (2000). Establishing a standard definition for child overweight and obesity worldwide: international survey. *British Medical Journal, 320(7244), 1240-1243.*

Background

Prevalence of overweight/ obesity among adolescents



Intervention

- Student Health Councils (SHCs) established to design and implement activities
- School environmental initiatives/ policies to support student-led initiatives
- SHCs implemented following the principals of positive youth development

Breakfast Clubs

Physical Activities

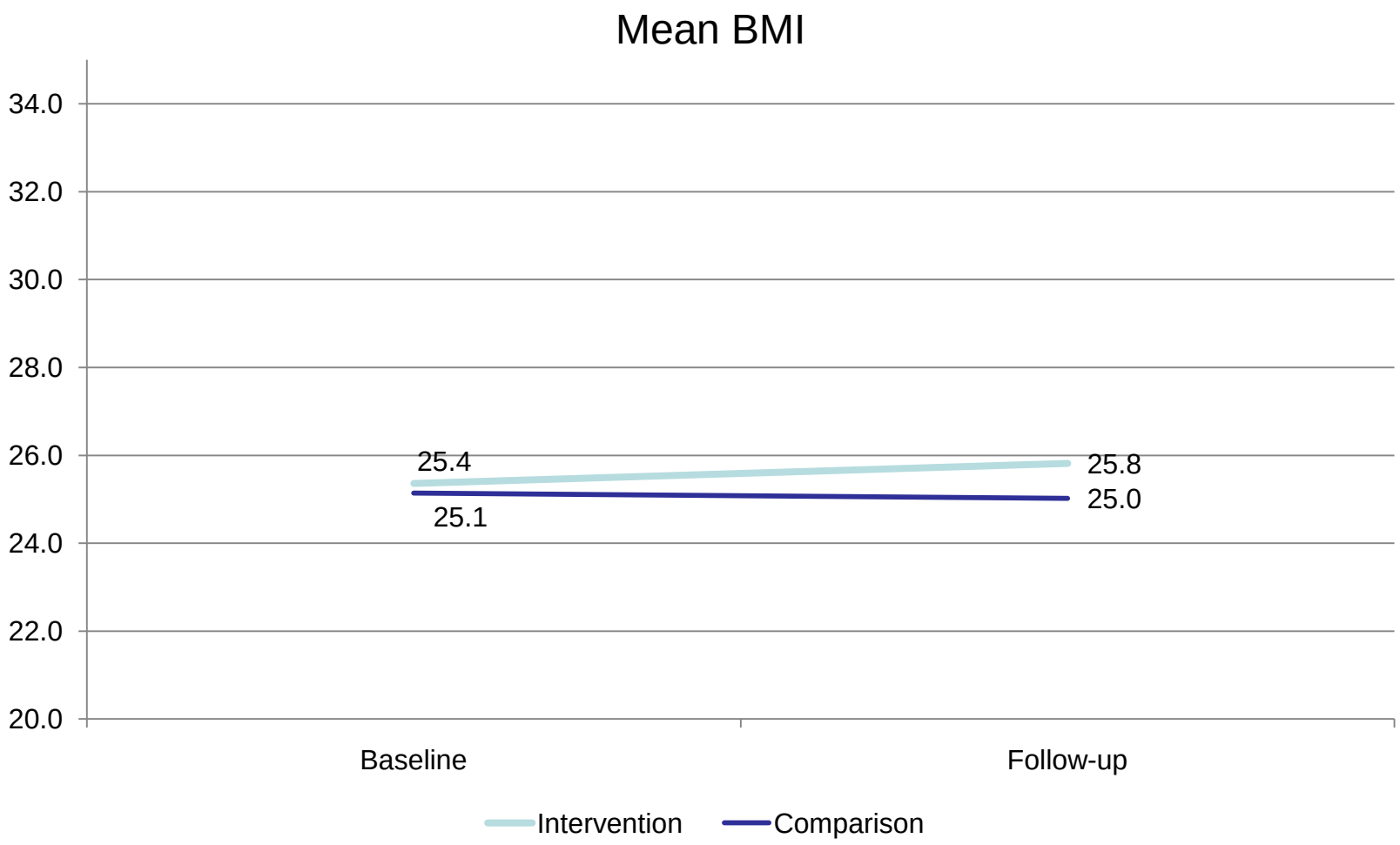
Health Promotion Weeks

Water Promotions

Evaluation

- What was the school interventions impact on adolescent obesity prevalence?
  - Anthropometric measures
    - BMI, BMIz (WHO), Weight (kg), Body fat %, Waist circumference (WC)
  - Measure intervention objectives
    - Increase physical activity before and after school
    - Decrease television use
    - Increase consumption of breakfast eating
    - Reduce consumption of sugar sweetened beverages
    - Improve the quality of foods sold at school

Results



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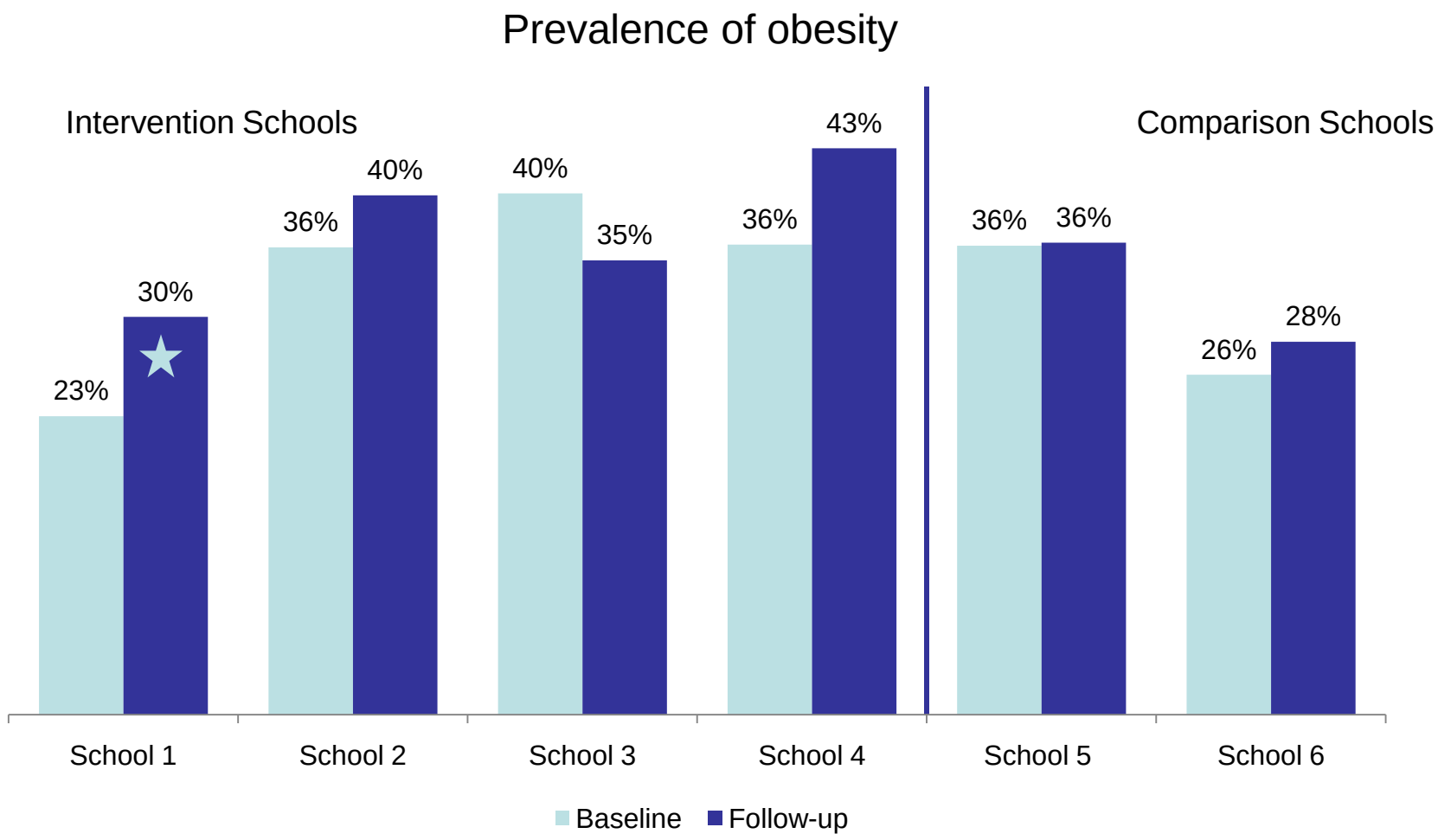
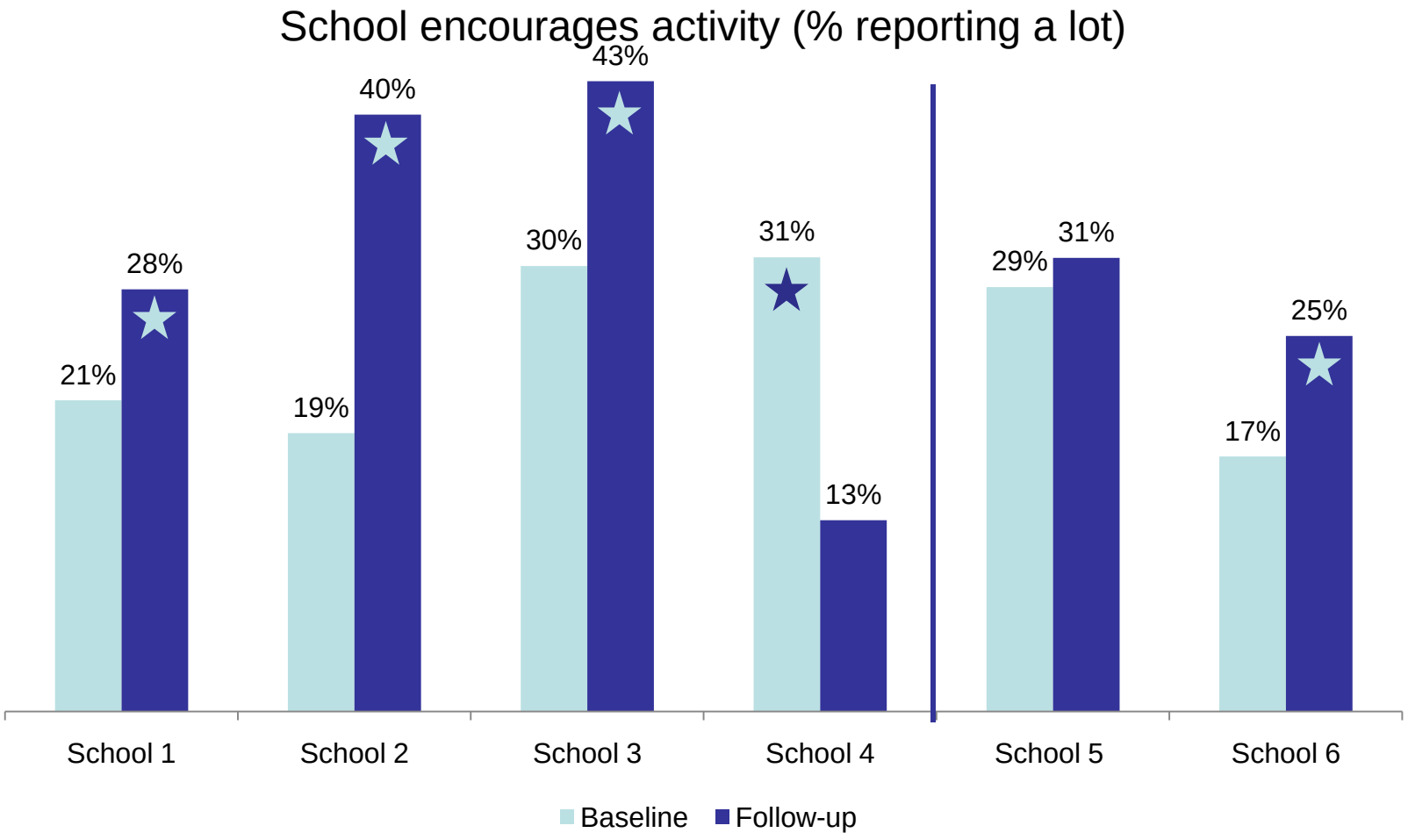
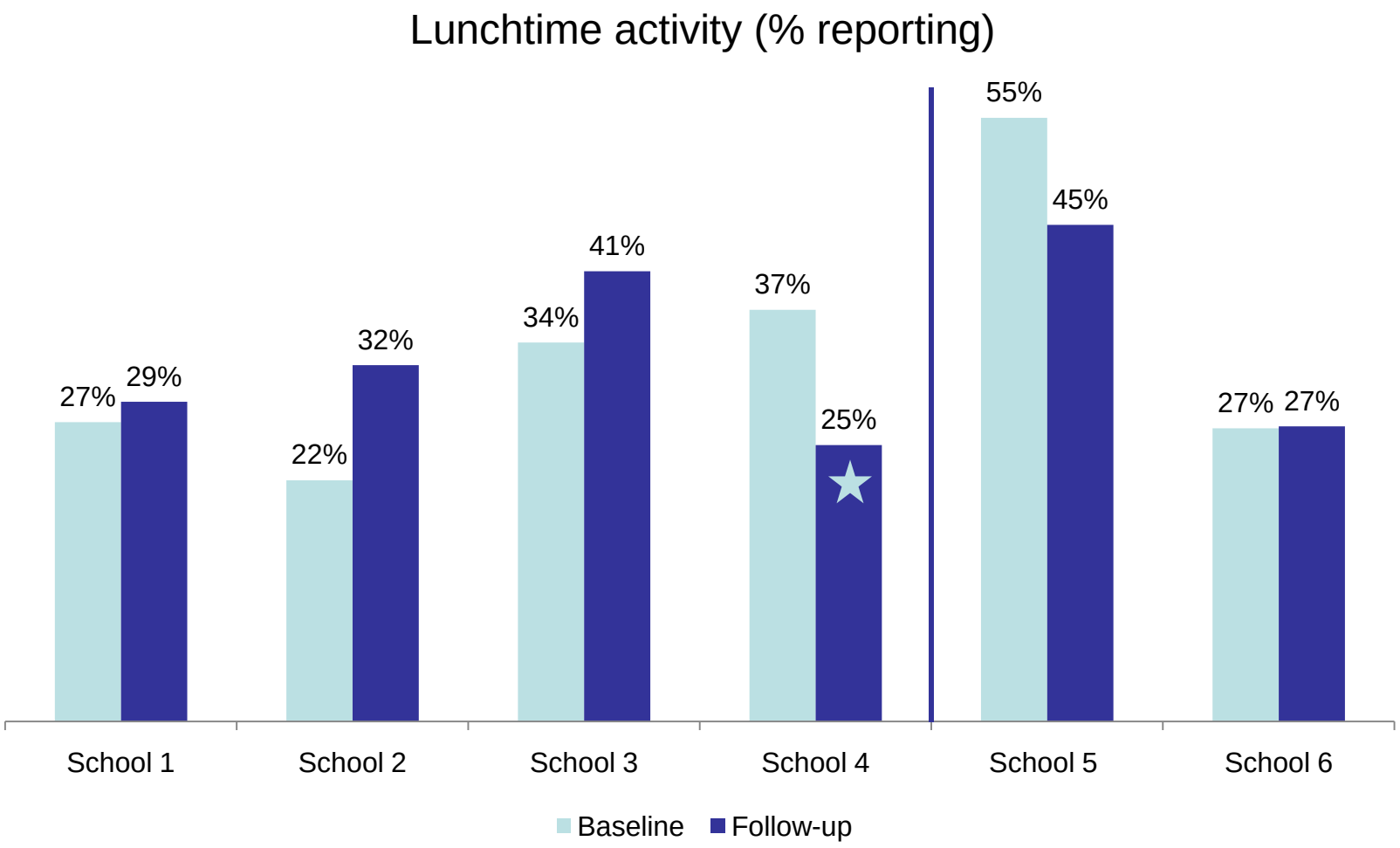
Results


Prevalence of obesity
Intervention Schools
Comparison Schools
23%
30%
36%
40%
40%
35%
36%
43%
36%
36%
26%
28%
School 1
School 2
School 3
School 4
School 5
School 6
Baseline
Follow-up

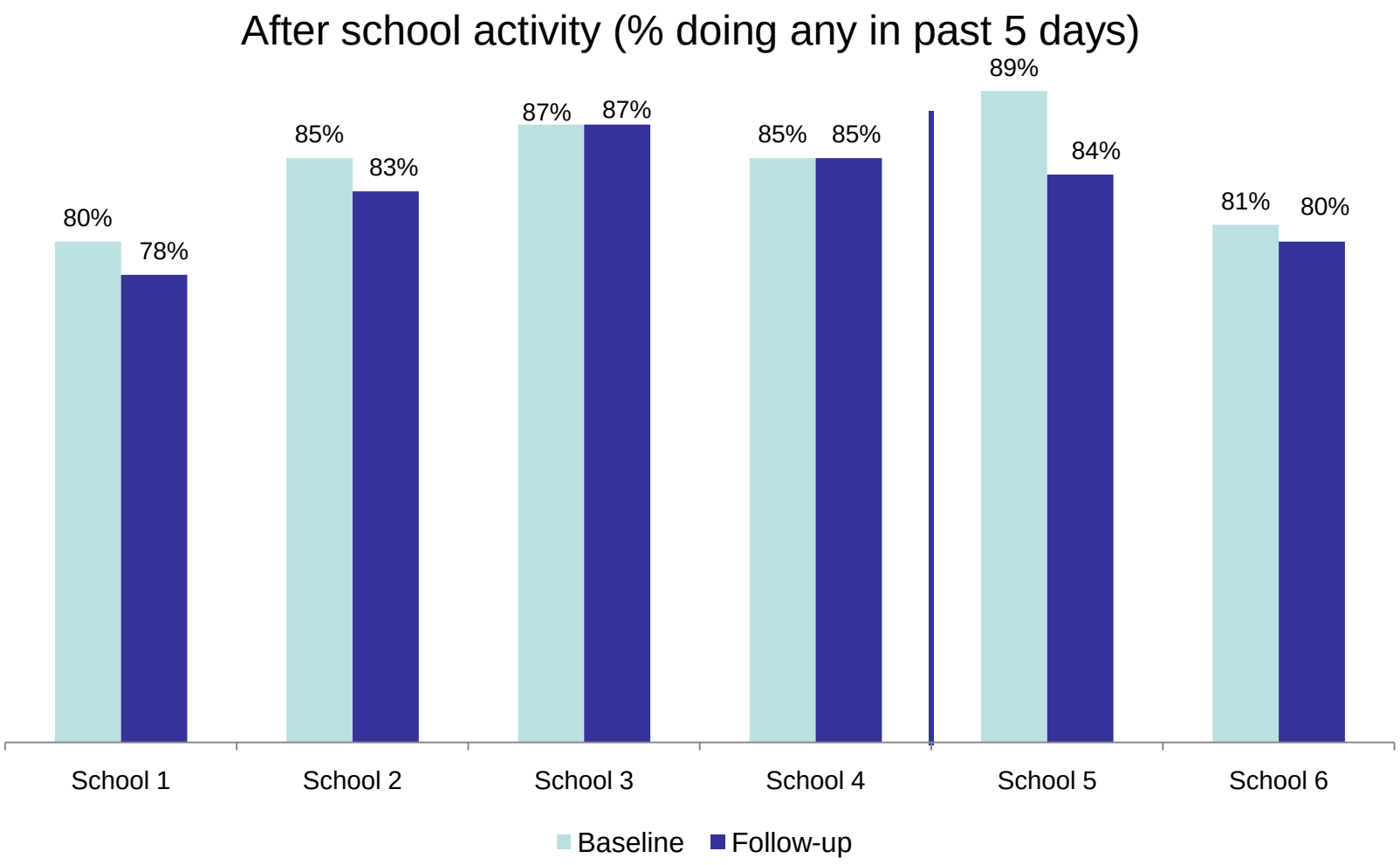
Results


School encourages activity (% reporting a lot)
21%
28%
19%
40%
30%
43%
31%
13%
29%
31%
17%
25%
School 1
School 2
School 3
School 4
School 5
School 6
Baseline
Follow-up

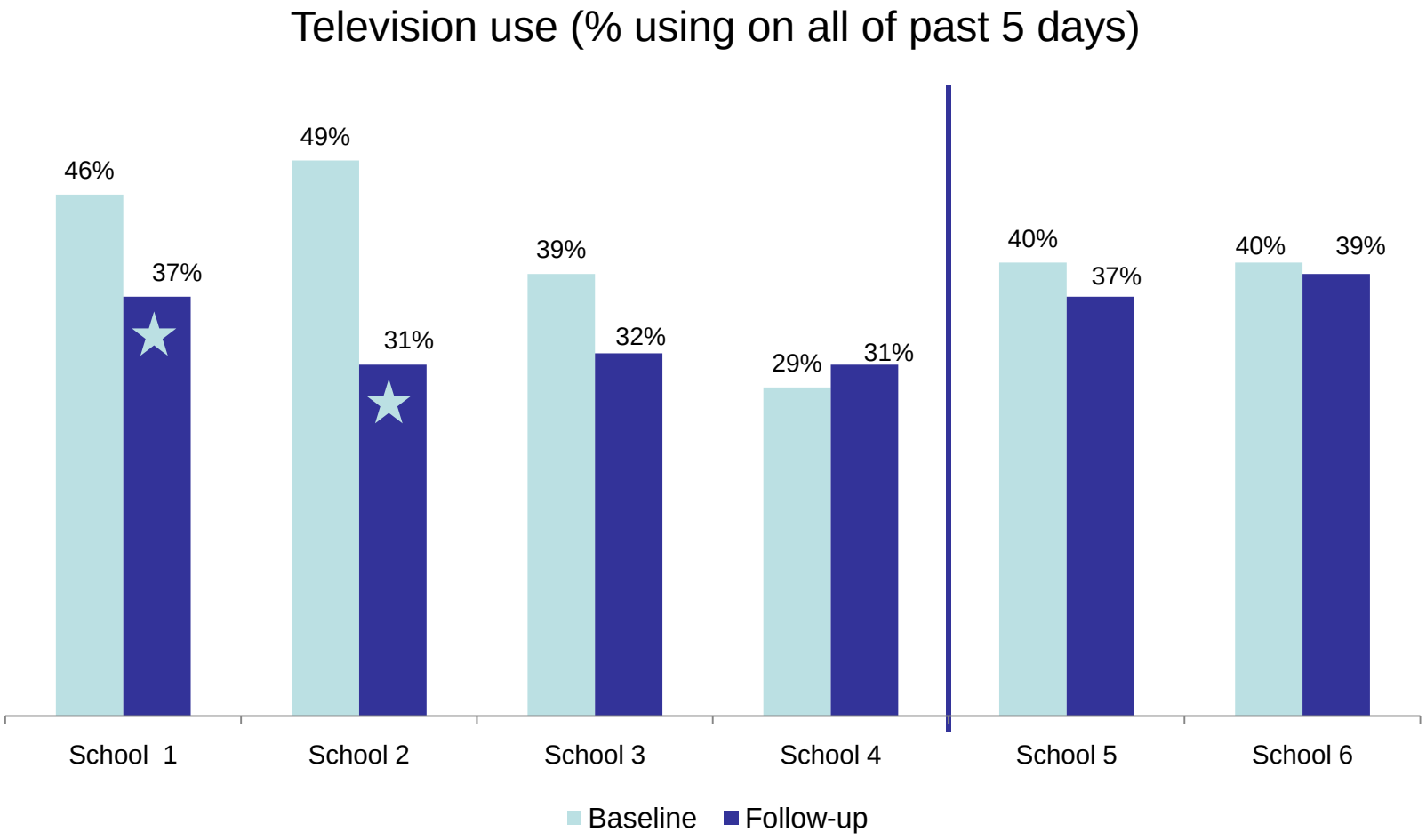
Results


Lunchtime activity (% reporting)
27%
29%
22%
32%
34%
41%
37%
25%
55%
45%
27%
27%
School 1
School 2
School 3
School 4
School 5
School 6
Baseline
Follow-up

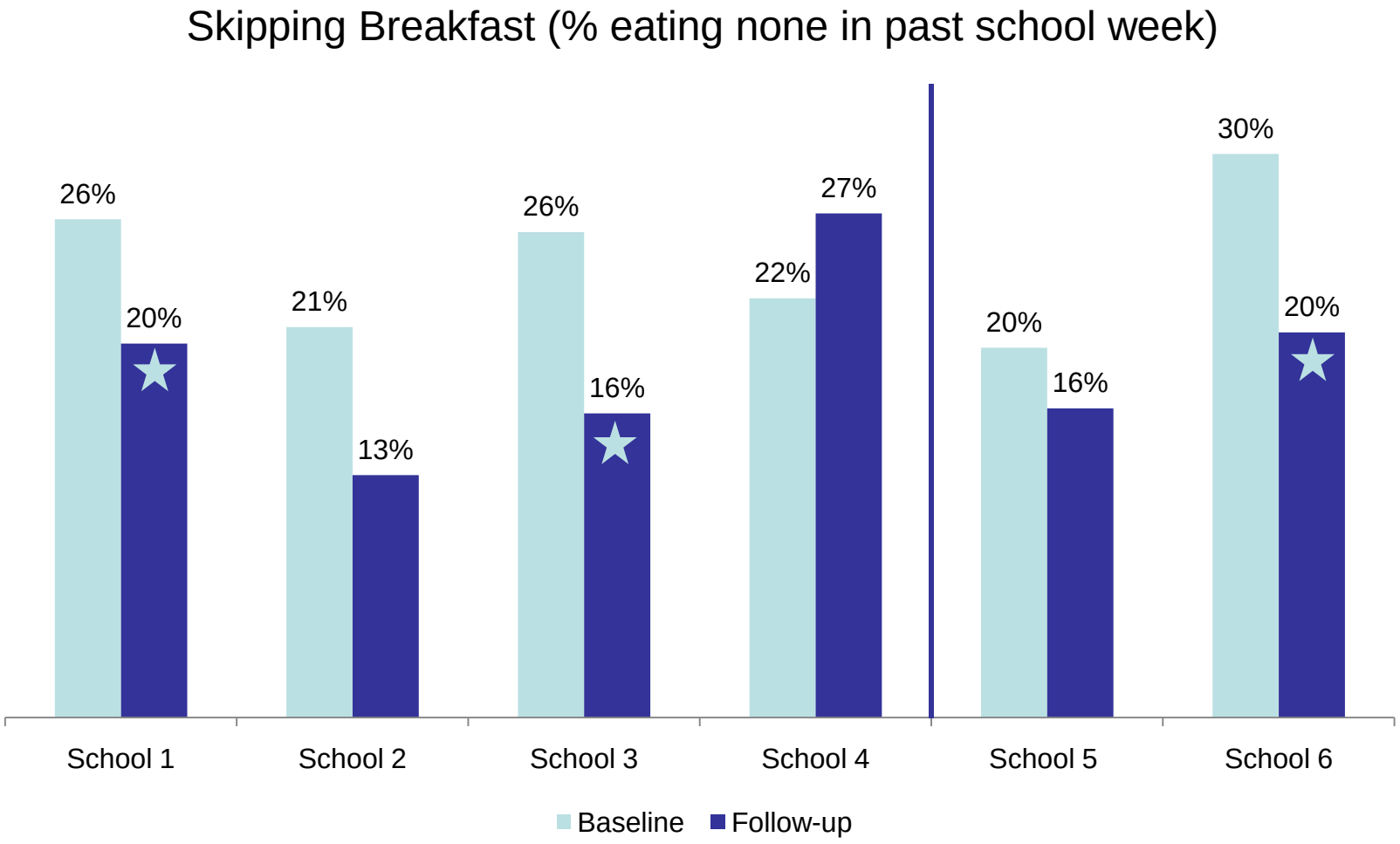
Results


After school activity (% doing any in past 5 days)
80%
78%
85%
83%
87%
87%
85%
85%
89%
84%
81%
80%
School 1
School 2
School 3
School 4
School 5
School 6
Baseline
Follow-up

Results

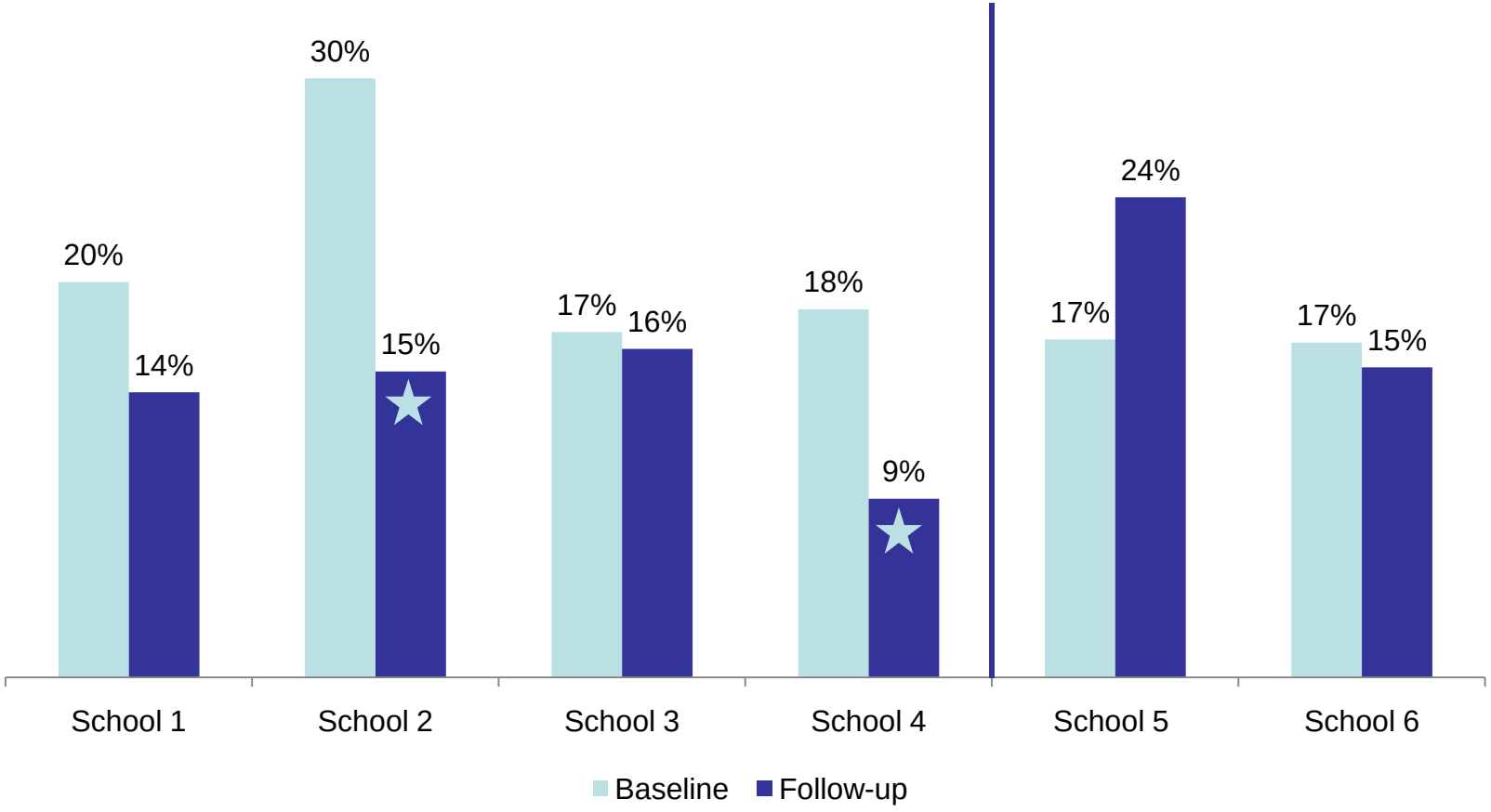

Television use (% using on all of past 5 days)
46%
37%
49%
31%
39%
32%
29%
31%
40%
37%
40%
39%
School 1
School 2
School 3
School 4
School 5
School 6
Baseline
Follow-up

Results


Skipping Breakfast (% eating none in past school week)
26%
20%
21%
13%
26%
16%
22%
27%
20%
16%
30%
20%
School 1
School 2
School 3
School 4
School 5
School 6
Baseline
Follow-up

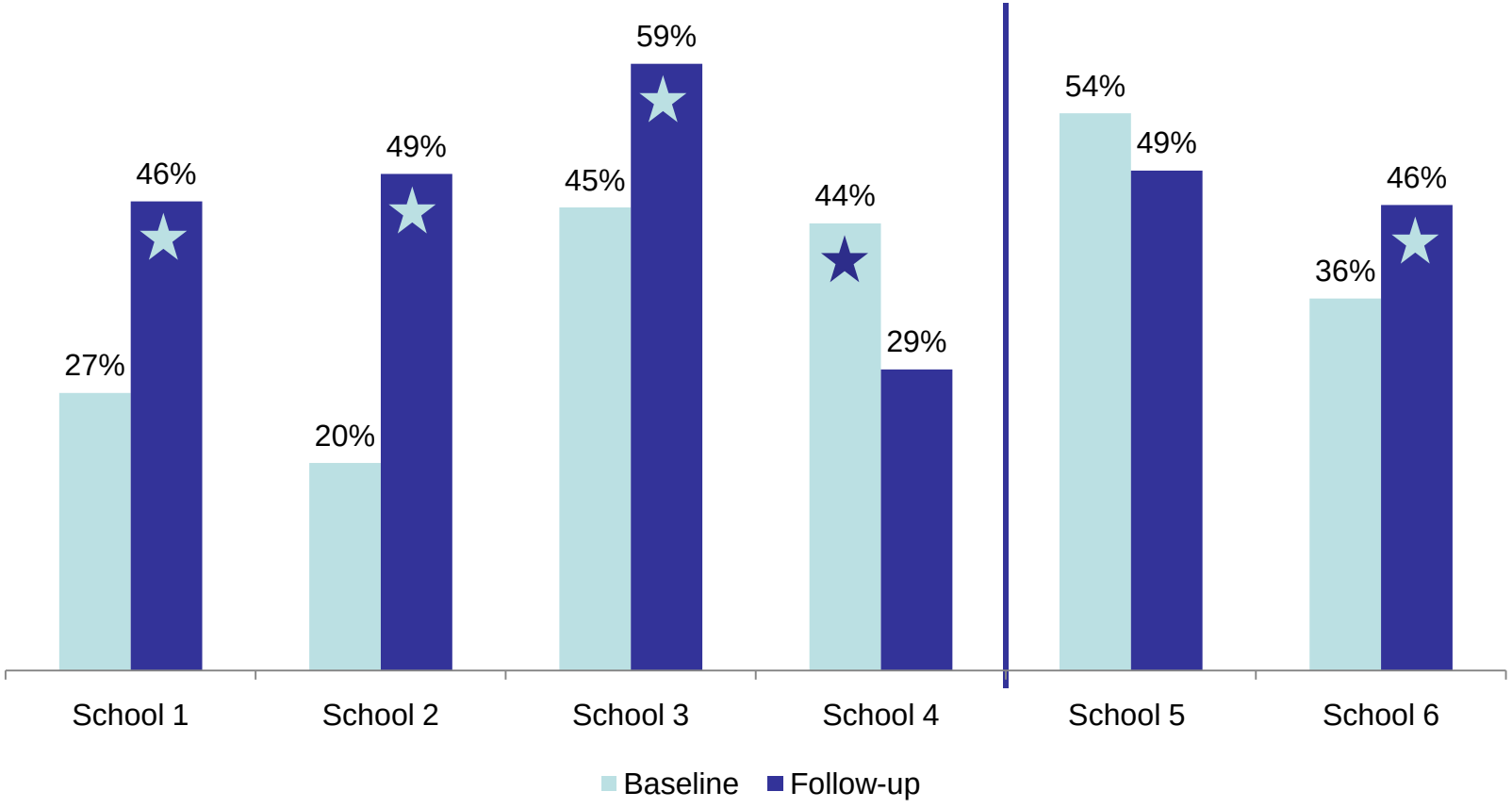
Results

Soft drink consumption (% drinking everyday in past school week)

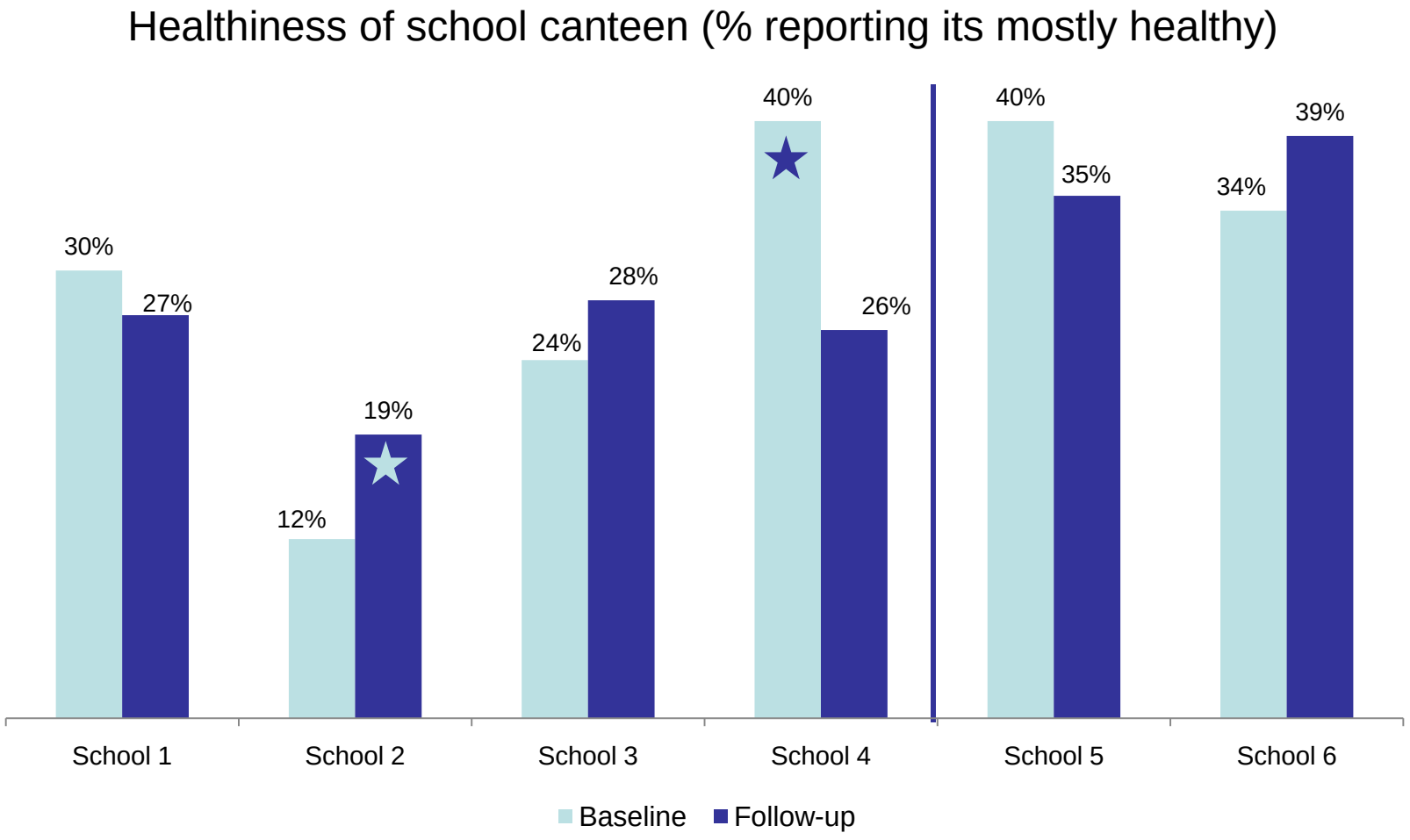


Results

School encourages healthy eating (% reporting a lot)



Results


Healthiness of school canteen (% reporting its mostly healthy)
30%
27%
12%
19%
24%
28%
40%
26%
40%
35%
34%
39%
School 1
School 2
School 3
School 4
School 5
School 6
Baseline
Follow-up

Summary of Behavioural Outcomes by School

	Intervention				Comparison	
	School 1	School 2	School 3	School 4	School 5	School 6
% Obese	–	NC	NC	NC	NC	NC
Lunchtime activity	NC	NC	NC	–	NC	NC
After school activity	NC	NC	NC	NC	NC	NC
Television use	+	+	NC	NC	NC	NC
Soft drink consumption	NC	+	NC	+	NC	NC
Breakfast consumption	+	NC	+	NC	NC	+
School encourages activity	+	+	+	–	NC	+
School encourages healthy eating	+	+	+	–	NC	+
Healthiness of canteen food	NC	+	NC	–	NC	NC

+ significant improvement in school

– significantly worse change within school

NC No significant changes within school

Limitations

- Working with schools requires flexibility in delivering the intervention
- Working with schools requires the cooperation of passionate school leaders
- The existing study design was feasible, but underpowered

Conclusions

- Living 4 Life – school based intervention study was not able to make significant improvements to reductions in obesity, but may have resulted in positive improvements in some eating behaviours
- Results concur with international studies
- Future initiatives will likely need to be more intensive and address the wider contexts and environments (economic, media, familial) that young people live in – move beyond schools!

International scene

- Thomas, H. (2006). **Obesity prevention programs for children and youth: why are their results so modest?** *Health Education Research, 21(6), 783-795.*

- Swinburn, B. (2010). ***Are community-based interventions working?*** Paper presented at the 11th International Congress on Obesity. 11-15 July, 2010, Stockholm.

- Wardle, J., Brodersen, N. H., Cole, T. J., Jarvis, M. J., & Boniface, D. R. (2006). Development of adiposity in adolescence: five year longitudinal study of an ethnically and socioeconomically diverse sample of young people in Britain. *BMJ, 332(7550), 1130-1135.* **Adolescent obesity is established in childhood**

- Jaime, P. C., & Lock, K. (2009). **Do school based food and nutrition policies improve diet and reduce obesity?** *Preventive Medicine, 48(1), 45-53.*

- Brownell, K. D., Schwartz, M. B., Puhl, R. M., Henderson, K. E., & Harris, J. L. (2009). **The Need for Bold Action to Prevent Adolescent Obesity.** *Journal of Adolescent Health, 45(3, Supplement 1), S8-S17.*

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