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Outcome evaluation of the All Wales Diabetes Prevention Programme

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Evaluation

What is the All Wales Diabetes Prevention Programme (AWDPP)?

- The AWDPP consists of a 30-minute, person centred, brief intervention, designed to reduce the incidence of type 2 diabetes (T2DM) among individuals living with prediabetes, through supporting health behaviour changes. Launched in June 2022, the programme is now operational in all health boards in Wales

What were the aims of the Evaluation?

1. **To monitor blood glucose categories at follow-up** (one year after baseline HbA1c level)
   Participants were grouped as having:
   - **Normal blood glucose levels**: HbA1c below 42 mmol/mol
   - **Prediabetes**: HbA1c between 42–47 mmol/mol
   - **T2DM**: HbA1c above 47 mmol/mol
2. **To measure change in blood glucose levels** (tracking how HbA1c levels change from baseline to follow-up)

Evaluation Method

- **The outcome evaluation used a Non-Randomised Stepped Wedge Trial**
- **What is a Stepped Wedge Trial?** A type of study where all participating sites receive the intervention, but at different, staggered time points
- This method includes the use of a comparison group, made up of those who would have been eligible for the AWDPP prior to its start, but did not receive the intervention.

How did it work in the AWDPP evaluation?

- **Three "steps":** Groups of GP practices began delivering AWDPP at different times between June 2022 and June 2023
- Each "step" was introduced at **4-month intervals:** June 2022, Nov 2022, March 2022
- **59 practices took part across 6 Health Boards** (1 excluded due to differences in follow up timing, compared to the national protocol)
- **Continuous participant recruitment** across the trial (offered intervention)
- **Comparison group** of people with prediabetes identified before each practice began the programme
- **Design and statistical analysis and modelling** supported by Swansea University's Diabetes Research Group
- **Trial** listed on UK **registry for clinical trials** for transparency.

- Economic assessment based on study findings being scoped

Differences between groups at baseline

Group Offered AWDPP

- **1,970 adults** with prediabetes
- Average HbA1c at baseline: 43.7 mmol/mol
- 29% in the two highest obesity groups (but data quality poor)
- Average age 64 years*
- 51% female*
- 55% in the two most deprived quintiles

Comparison Group

- **1,494 adults** with prediabetes *before AWDPP began*
- Average HbA1c at baseline: 43.6 mmol/mol
- 32% in the two highest obesity groups (but data quality poor)
- Average age 66 years*
- 56% female*
- 50% in the two most deprived quintiles

* Statistically significant

Results – Change in blood glucose categories

1. Reverting to normal blood glucose levels

- There is insufficient evidence to demonstrate that those who were offered the AWDPP were more likely to revert to having a normal blood glucose level

Probability	Relative Risk	Interpretation
• The probability of returning to normal blood glucose levels was slightly lower (-5%) for the group offered AWDPP (confidence intervals -0.10 – 0.00)	• The **comparison group** was **1.2 times more likely** to return to normal blood glucose levels than the group offered AWDPP	• Returning to normal glucose levels occurred **less often in those offered AWDPP, but the difference was not large enough to be statistically meaningful**

Results – Change in blood glucose categories

2. Remaining living with prediabetes

- Those who were offered the AWDPP were more likely to have blood glucose levels remain within the prediabetes range

Probability	Relative Risk	Interpretation
• The probability of people remaining at prediabetic level was 26% higher in the group offered AWDPP (confidence intervals 0.16,0.36)	• The **group offered AWDPP** was **1.6 times more likely** to remain living with prediabetic blood glucose levels than the comparison group	• Remaining living with prediabetic blood glucose levels occurred **more often in those offered AWDPP**

Results – Change in blood glucose categories

3. Progressing to diabetes

- Those who were offered the AWDPP were less likely to progress to diabetic blood glucose levels

Probability	Relative Risk	Interpretation
• **The probability of people reaching diabetic levels was 23% lower in the group offered AWDPP** (confidence intervals -0.38,-0.07)	• The **comparison group** was **6.5 times more likely** to progress to living with diabetic blood glucose levels than the group offered AWDPP	• Progressing to living with diabetic blood glucose levels occurred **less often in those offered AWDPP**

Results – Change in blood glucose categories

4. “Not becoming worse”

- Those who were offered the AWDPP were less likely to have a worsening category at follow-up

Probability	Relative Risk	Interpretation
• The probability of people remaining at prediabetes OR returning to normal blood glucose levels was 23% higher in the group offered AWDPP (confidence intervals 0.07,0.38)	• The **group offered AWDPP** was **1.3 times more likely** to remain living at prediabetes OR returning to normal blood glucose levels than the comparison group	• In other words, “not becoming worse” occurred **more often in those offered the AWDPP**

Results – Change in blood glucose levels

5. Measure Change in Blood Glucose Levels at one year

- Overall, average blood glucose levels were **lower by 1.1mmol/mol** in the group offered the intervention compared to the comparison group, with some differences (improvement) seen over time

What this means:

- We saw a modest but meaningful improvement in managing blood glucose because of the AWDPP, which can reduce the risk of progressing to T2DM in the longer term

Conclusion

- The evaluation demonstrates ***the AWDPP was effective in reducing progression to diabetic blood glucose levels***, suggesting that a brief intervention targeting modest health behaviour changes had a positive impact on this clinical indicator.

- This evaluation showcases how a stepped wedge approach can be successfully designed around live, national roll-out of an intervention. This approach generates more robust evidence of impact, as there is a comparison group.

Recommendation

✅ Sustain and scale up AWDPP

- Continue funding and expand delivery to reach more at-risk populations across Wales
- The programme has shown early signs of effectiveness in improving blood glucose control, and scaling it up can enhance its impact across more communities at risk of developing T2DM

📊 Assess long-term impact

- Support monitoring and evaluation of the programme’s long-term (5-10 years) health and economic benefits
- Understanding its sustained impact over time will help inform future decisions on diabetes prevention strategy and resource allocation

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Annex

Data Collection

- Health Care Workers recorded data during AWDPP delivery directly into the recipient's primary care **Electronic Health Record** (EHR) using a customised data entry template.
- EHR data was linked with secondary sources, including the Annual District Death Extract and the Welsh Demographic Service Database.
- Public Health Wales conducted cohort identification and data linkage within the **Secure Anonymised Information Linkage (SAIL) Databank.**

Strengths and limitations

Strengths

- A **modified stepped wedge non-randomised trial** was chosen to pragmatically align with how the programme was implemented across Wales. This approach enabled a rigorous evaluation of the health intervention in real-world conditions where a randomised controlled trial was not feasible

- **Showcases how a stepped wedge approach can be successfully designed around live intervention roll-out,** despite limited control over implementation and follow-up data.

- Highlights the **importance of developing data collection** structures and systems **at intervention design stage**; supporting both evaluation and reporting needs (i.e., Audit+, National Diabetes Audit).

Limitations

- **Data quality limitations**: Key influencing factors (e.g., BMI, referrals) are not fully captured in the analysis.

- **Reliance on routine bloods:** Use of retrospective clinical data may introduce sampling bias and result in low follow-up coverage.

Caveats on interpretation

- **This presentation outlines key results.** The full report will be released by Public Health Wales at a later date.
- **Timing of process evaluation:** Limits ability to contextualise results or assess broader outcomes such as implementation fidelity and participant acceptability.
- **Further multivariate analysis may be required** to account for confounding factors (e.g. age), although initial exploration of data suggests these do not have a significant impact on the findings.

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