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From Data to Outcomes:

Evaluating and Accelerating Program and Service Effectiveness with Population Health Analytics

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Today's Speakers

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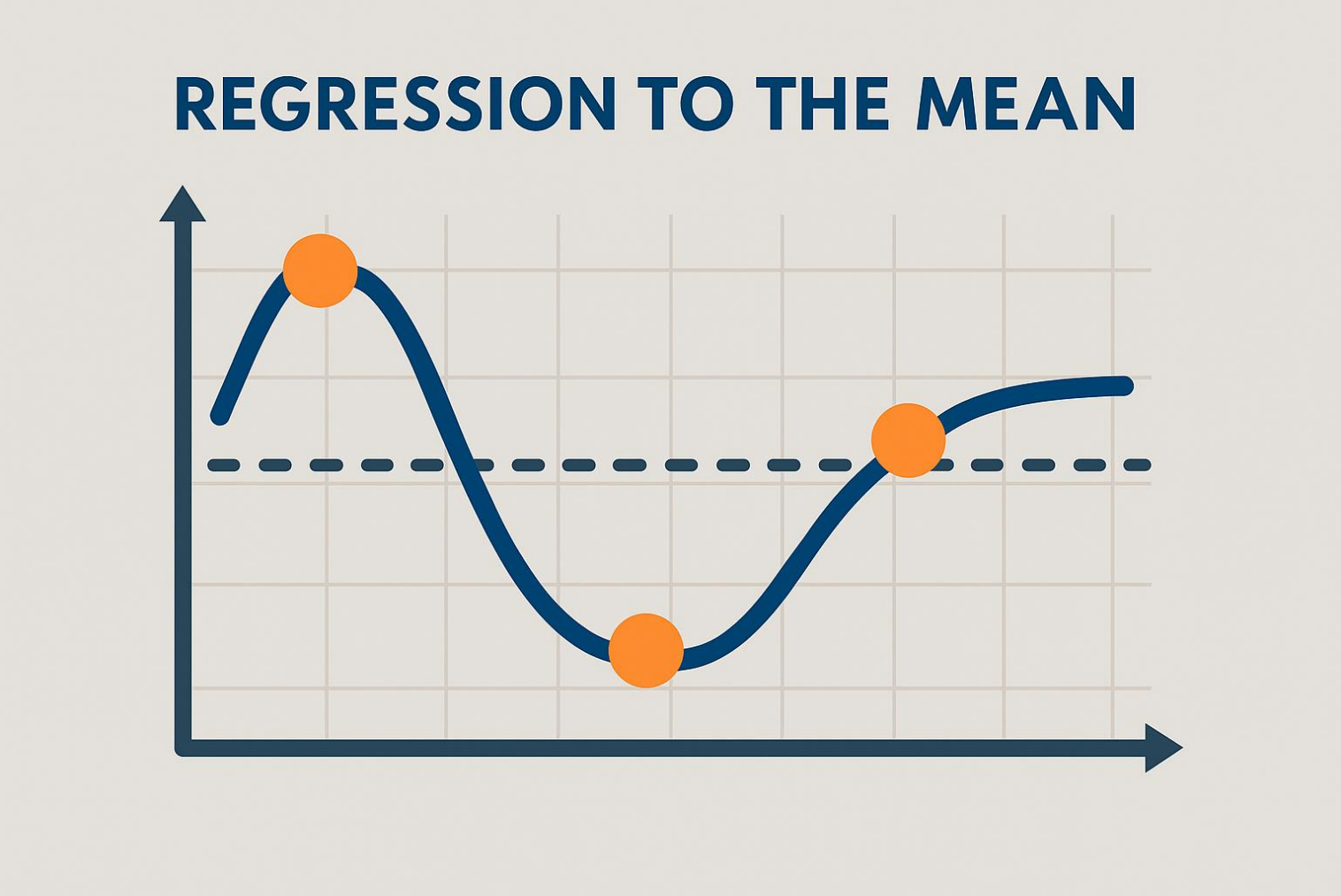
Population Health Management

Evaluation as an essential capability in the 'toolkit'

- **Structured Process for Improvement:** Define baseline, clarify objectives, and identify expected impact.
- **Iterative Approach:** Continually refine services and methodologies based on emerging insights.
- **Rigorous Design:** Use control groups and baselines where possible to strengthen validity.
- **Diverse Evaluation Methods:** Not all evaluation is empirical—feedback, experience scores, qualitative insights, and testimonials are also valuable.
- **Practical Application of Insights:** Embed evaluation findings into operational and strategic decisions.
- **Hierarchy of Evidence:** Recognize that different methods vary in robustness; aim for the highest feasible standard to ensure credible results.
- **Continual Monitoring:** Evaluation is not a one-off exercise—regular, ongoing assessment is critical for sustained improvement.

Why can Evaluation be Misleading?

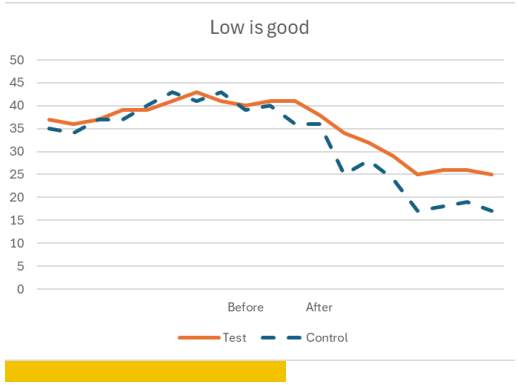


Kent Multi-Disciplinary Team

Goals and Challenges – Developing the Logic Model

Population Health Management	Modern General Practice	Standardising Community Health Services	Neighbourhood Multidisciplinary Teams (MDTS)	Integrated Intermediate care with a "Home First" Approach	Urgent Neighbourhood Services
A population health approach was taken using the Johns Hopkins (ACG) Risk Stratification Tool (based on deprivation and prevalence) • Adult Type 2 diabetes • Maximum tolerated therapies • Unstable control • HBA1C 70+	Streamlining care and pathway, making it equitable and meeting the population needs - • Proactively addressed Diabetes UK 15 recommended healthcare essentials • Ensured patients received all 8 care processes prior to clinic attendance	Designing the model to link in with future neighbourhood visions and developments - • Monthly complex patient MDT with hospital consultant • Patient and practice staff upskilling • Bi weekly housebound patient cohort MDT • Proactive model wrapping care around the patient and Nurse led	Service Delivered by MDT - • MDT Clinic delivered by Practice Nurse(s); Dietician and Specialist Nurse • Onward referral to Improving Access to Psychological Therapies (IAPT) Clinician, One You and Podiatry as necessary	• Onward referral to Improving Access to Psychological Therapies (IAPT) Clinician, One You and **Podiatry** as necessary	Across each of the areas of activity usage there is a notable reduction for the intervention group compared to the matched comparison diabetic population. For example, an observed reduction of 12 Emergency Department (ED) attendances over 6 months. (25% reduction in comparison to the matched cohort)

Propensity Score Matching using the ACG System



Before/After often misleading

How confident can we be that a change in outcomes for our test group can be attributed to our efforts and when can we confidently say it delivered against objectives?

Creating a robust matched cohort

Propensity score matching requires a robust, comprehensive and reliable measure of clinical complexity to ensure appropriate adjustment when constructing a matched cohort.

Time to insight

By enabling rapid creation of matched cohorts, ACG dramatically shortens the time to insight, replacing what would otherwise be a complex, resource-intensive process built from scratch.

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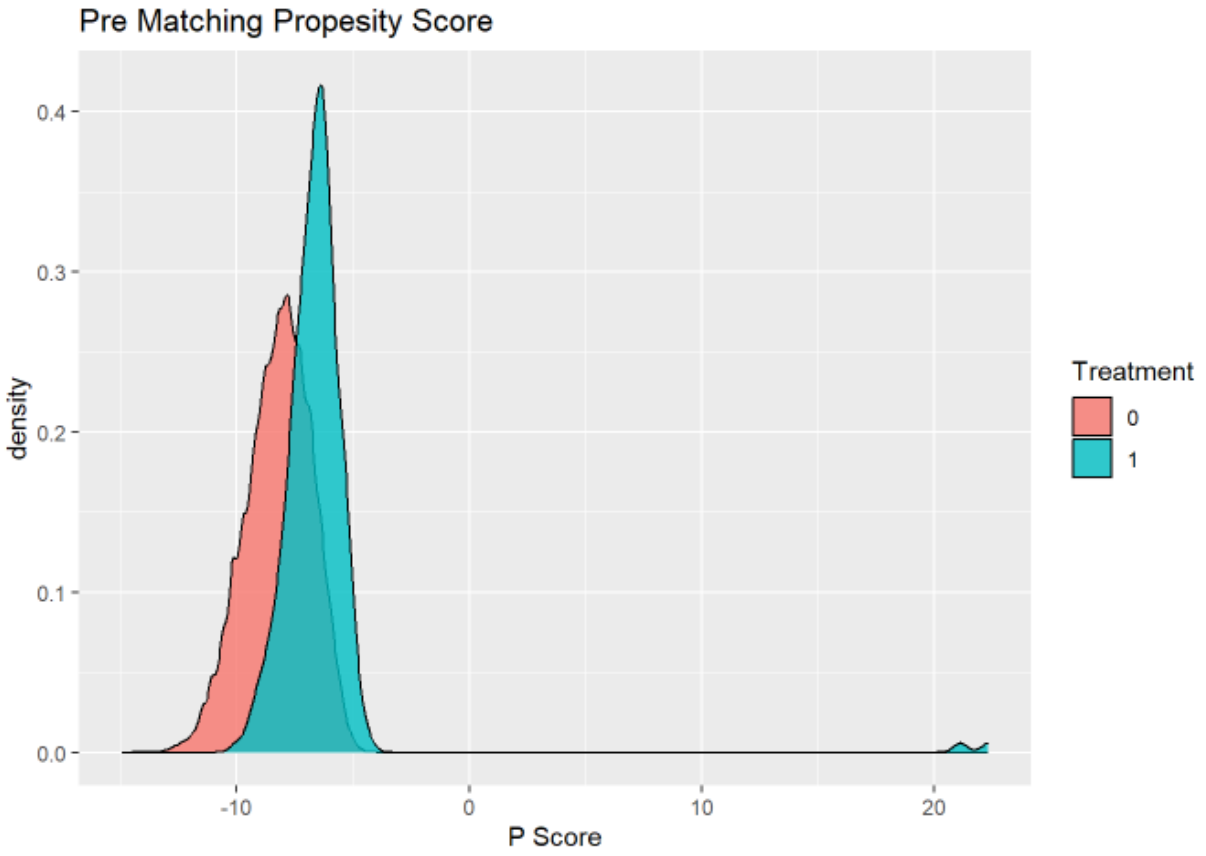
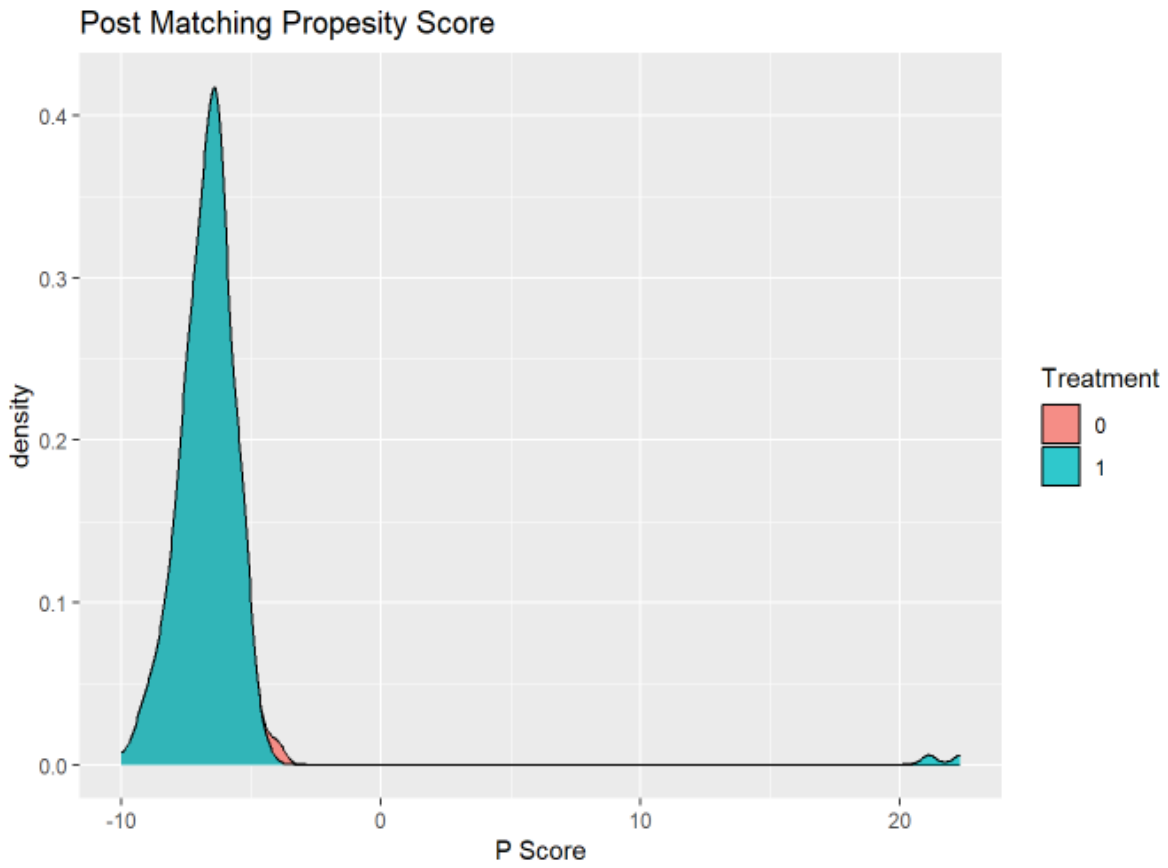
Key Outcomes

R Markdown Walkthrough: Propensity Score Matching and Findings





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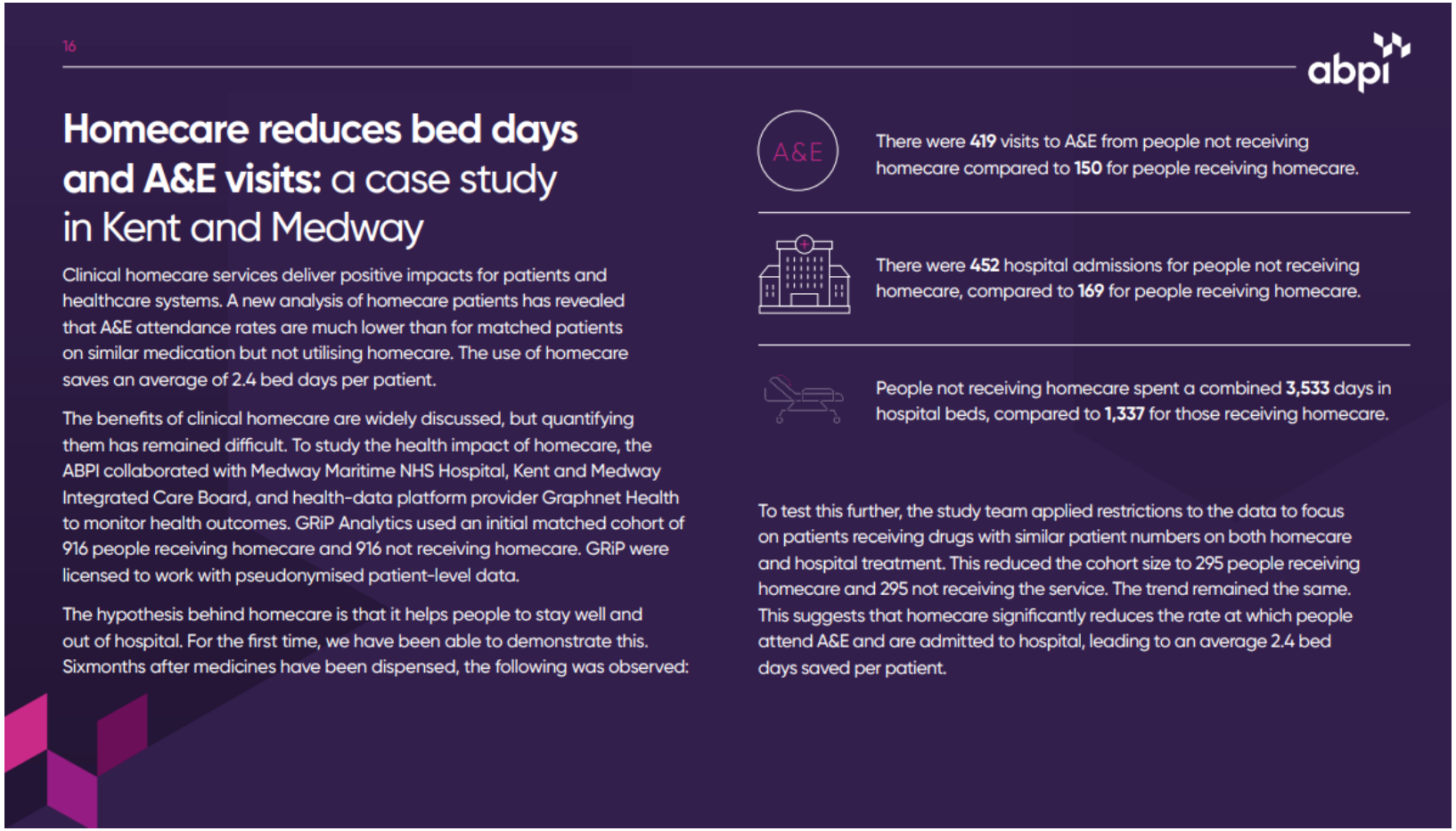
Practical Reflections

Why this worked in practice

- **Collaborative Approach:** Close partnership with Graphnet - the integrator - enabled a strong first cut, with Tim taking ownership of ongoing analysis.
- **Effective Roles & Infrastructure:** Graphnet's integration and data architecture support, combined with the ACG System embedded in existing infrastructure, allowed faster execution.
- **Key Strengths:** Leveraging pre-existing infrastructure streamlined analysis and reduced delays.
- **Challenges:** Propensity Score Matching success is highly dependent on data quality, and unmeasured confounders remain a limitation.
- **Lessons for Others:** Knowledge transfer is critical to move from one-off analyses to continuous, rapid evaluation cycles.

Lessons for Population Health

One framework to address many use cases as part of rapid and continual evaluation



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abpi

Homecare reduces bed days and A&E visits: a case study in Kent and Medway

Clinical homecare services deliver positive impacts for patients and healthcare systems. A new analysis of homecare patients has revealed that A&E attendance rates are much lower than for matched patients on similar medication but not utilising homecare. The use of homecare saves an average of 2.4 bed days per patient.

The benefits of clinical homecare are widely discussed, but quantifying them has remained difficult. To study the health impact of homecare, the ABPI collaborated with Medway Maritime NHS Hospital, Kent and Medway Integrated Care Board, and health-data platform provider Graphnet Health to monitor health outcomes. GRiP Analytics used an initial matched cohort of 916 people receiving homecare and 916 not receiving homecare. GRiP were licensed to work with pseudonymised patient-level data.

The hypothesis behind homecare is that it helps people to stay well and out of hospital. For the first time, we have been able to demonstrate this. Sixmonths after medicines have been dispensed, the following was observed:

A&E

There were **419** visits to A&E from people not receiving homecare compared to **150** for people receiving homecare.

There were **452** hospital admissions for people not receiving homecare, compared to **169** for people receiving homecare.

People not receiving homecare spent a combined **3,533** days in hospital beds, compared to **1,337** for those receiving homecare.

To test this further, the study team applied restrictions to the data to focus on patients receiving drugs with similar patient numbers on both homecare and hospital treatment. This reduced the cohort size to 295 people receiving homecare and 295 not receiving the service. The trend remained the same. This suggests that homecare significantly reduces the rate at which people attend A&E and are admitted to hospital, leading to an average 2.4 bed days saved per patient.

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Questions?

For more information, please contact us at **acginfo@jh.edu** or visit **hopkinsacg.org**.

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