

# P3 Score Methodology for Primary Care Capitation Re-weighting

## Overview

The P3 (Pharmaceutical Prescribing Profile) score is a population-based indicator of long-term condition burden derived from community pharmacy dispensing data. It is applied in primary care funding to support capitation re-weighting, service planning, and risk adjustment.

The conceptual foundation of this approach is informed by the Pharmaceutical Prescribing Profile (P3) index developed by Stanley, Doughty and Sarfati (2019), which demonstrated that pharmaceutical dispensing data can be used to identify long-term conditions and construct a multimorbidity measure when diagnosis data are incomplete or inconsistent. This implementation adapts that framework for operational funding purposes rather than mortality prediction.

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## Population and Data Period

- P3 scores are calculated for individuals enrolled at a defined enrolment snapshot date.
- A 12-month historical window of community pharmacy dispensing data is used.
- Medicines are included only where they indicate ongoing management of long-term conditions.

Each condition group is counted once per person during the look-back period, irrespective of dispensing frequency.

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## Identification of Long-Term Conditions

Dispensed medicines are mapped to predefined therapeutic groupings that represent long-term conditions. A person is considered to have a condition if they receive at least one qualifying dispensing within the 12-month period.

Conditions are categorised into:

1. Non-cardiovascular long-term conditions
2. Cardiovascular disease (CVD) prevention medicine groups

This classification approach reflects the structure of the original P3 framework while being applied here for funding adjustment.

## Non-Cardiovascular Long-Term Conditions

Each non-CVD condition contributes a fixed coefficient to the P3 score. These coefficients represent the relative morbidity contribution associated with that condition within the P3 framework.

### Non-CVD Condition Coefficients

Condition Group	Description	Coefficient	Therapeutic Group IDs
Anaemia	Chronic anaemia treatment	0.48	13830, 40101, 40103, 40104
Anticoagulation	Long-term anticoagulant therapy	0.24	40704, 40707
Anxiety / tension	Ongoing anxiety treatment	0.18	222501, 222801
Arrhythmias	Anti-arrhythmic therapy	0.27	71301
Congestive heart failure	Heart failure management	0.74	73101
Dementia	Dementia treatment	0.17	223201
Depression	Long-term antidepressant therapy	0.05	220501, 220504, 220505, 220507, 220509
Diabetes	Diabetes management medicines	0.35	11301, 11303, 11305, 11307, 11309, 11311, 11312, 11501, 11504, 11507, 11509, 11512, 11515, 420603
Epilepsy	Antiepileptic therapy	0.61	220701, 220702, 220703
Gastric acid disorders	Chronic acid-related therapy	0.25	10102, 10104, 11001, 11002, 11003, 11007, 11010, 11013
Hepatitis B or C	Antiviral therapy	1.16	161905, 162201
HIV	Antiretroviral therapy	0.85	162001, 162003, 162005, 162103
Ischaemic heart disease – angina	Nitrate therapy	0.11	73401
Malnutrition	Nutritional supplementation	1.38	420201, 420202, 420203, 420204, 420604, 420605, 420631, 420632

Multiple sclerosis	MS treatment	0.03	222601, 222604
Pancreatic insufficiency	Enzyme replacement therapy	0.78	12201
Parkinson's disease	Anti-parkinsonian therapy	0.40	220101, 220104
Psychotic illness	Antipsychotic therapy	1.07	222201, 222204, 222208
Pulmonary hypertension / PVD	Pulmonary or vascular therapy	0.39	74001, 74005, 74007, 74009
Reactive airway disease	Asthma / COPD therapy	0.13	281001, 282402, 282404, 283001, 283010, 283401, 283410, 284001, 284302, 284502, 285302
Steroid-responsive conditions	Long-term systemic steroids	0.60	140701
Transplant / autoimmune disorders	Immunosuppressive therapy	0.25	250701, 250706
Tuberculosis	Anti-tubercular therapy	0.42	161601

**Application rule:**

Where evidence of a condition is present, the associated coefficient is added once only.

All conditions that had a negative coefficient in the Pharmaceutical Prescribing Profile (P3) index developed by Stanley, Doughty and Sarfati (2019), have been excluded.

## Cardiovascular Disease (CVD) Prevention Medicines

### Rationale

Many cardiovascular medicines are prescribed to reduce future risk rather than to treat established disease. To avoid inflating morbidity burden through additive counting, preventive cardiovascular medicines are grouped and scored collectively.

### CVD Prevention Groups

Group	Description	Count	Therapeutic Group IDs
Antiplatelet therapy	Medicines reducing thrombotic risk	1	40701

Lipid-lowering therapy	Cholesterol management medicines	1	73201, 73202, 73203, 73204, 73208
Blood-pressure-lowering therapy	Antihypertensive medicines	1	70101, 70401, 70701, 70702, 70703, 70705, 71601, 71901, 72201, 72202, 72801, 73104, 73107, 73110

Each group is counted once per person during the 12-month period.

## Grouped CVD Coefficients

The grouped CVD contribution is determined by the number of distinct prevention groups present:

Number of CVD Groups	Coefficient Applied
1 group	0.06
2 or more groups	0.10

This grouped structure reflects preventive treatment intensity rather than disease severity and supports stable funding application.

## Calculation of the Final P3 Score

For each enrolled individual:

1. Sum the coefficients for all identified non-CVD conditions.
2. Determine the number of CVD prevention groups present and apply the corresponding grouped coefficient.

Conceptually:

$P3 \text{ Score} = (\text{Sum of non-CVD condition coefficients}) + (\text{Grouped CVD coefficient})$

The result is a single numeric score per person.

## P3 Score Grouping for Funding

For funding application, P3 scores are categorised into three morbidity tiers:

P3 Score	P3 Group
= 0.0	Group 1
0.01 – 0.42	Group 2
> 0.42	Group 3

This classification simplifies the continuous score into practical funding bands.

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## Replication Requirements

The P3 score can be replicated using:

- Community pharmacy dispensing data
  - A defined 12-month look-back period
  - A mapping of medicines to condition groups
  - Application of the coefficients and grouping rules described above
  - A defined enrolment snapshot population
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## Disclaimer

The P3 score is an analytical measure derived from pharmaceutical dispensing data and applied for funding and planning purposes; it does not constitute a clinical diagnosis, assessment of disease severity, or entitlement to services.

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## Reference

Stanley J, Doughty RN, Sarfati D.  
A pharmaceutical dispensing-based index of mortality risk from long-term conditions performed as well as hospital record-based indices. *Medical Care*. 2019.