

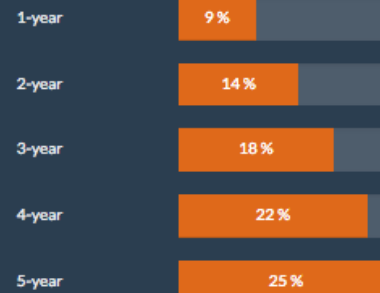
PG-HACKER Score

MACCE cumulative incidence for Diabetic Patients post-MI


Age	50
Gender	Male
LVEF	>51%
Peripheral artery disease	No
Previous CHF	No
Killip class	I (no CHF)
Optimal medical treatment	No


Points = 6

MACCE incidence



Evidence 

Pen & Paper Calculation 

Incidence Table 

The PG-HACKER registry

A cohort of 1400 diabetic patients who were admitted due to acute coronary syndrome (ACS), between Nov 2003 and Jan 2017.

They were followed for MACCE events and all-cause mortality.

Definitions:

- MACCE event: either cardiovascular mortality, new myocardial ischemia, sudden cardiac death, cerebrovascular accident or heart failure episode.
- ACS: was defined by the presence of typical clinical symptoms of chest pain and electrocardiographic changes indicative of myocardial ischemia/lesion and/or elevation of serum markers of myocardial damage [Ibanez, 2018].
- LVEF: left ventricle ejection fraction was coded in: no dysfunction (LVEF > 51%) mild (LVEF 41-51%), moderate (LVEF 30-40%) or severe dysfunction (<30%) [Lang, 2015].
- OMT: was defined as the joint implementation of these four treatments: antiplatelets, statins, betablockers and angiotensin-converter enzyme inhibitors or mineralocorticoid receptor antagonists (MRAs).

Outcomes:

- 783 patients suffered a MACCE event, from which 417 patients died.
- 143 patients died from non-cardiovascular causes.

Statistical rationale:

- The PG-HACKER score is based in a Fine & Gray model for competing risks.
- A competing risk (CR) is an event whose occurrence either precludes the occurrence of another event under examination or fundamentally alters the probability of occurrence of this other event.
- Kaplan-Meier methods are not suitable for modeling CRs, as they tend to overestimate incidence.
- Fine & Gray models have use in predicting an individual's incidence of an event (MACCE), taking into account the possibility that a competing event (all-cause mortality) occurs.
- The point-based score transforms the time-to-event model into a simple set of operations, to facilitate its use in the clinical setting.

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Evidence 📖

Pen & Paper Calculation ✎

Incidence Table 📊

Age 📅

- Option 1: add 1 point every 5 years, starting from age 20 to 95.
- Option 2: points = (age - 20)/5 (rounded to floor).
- Range: 0-15 points.

Gender 👤

- Female: -1 point.
- Male: 0 points.

Previous CHF ❤️

- 1 point if diagnosed.

LVEF 📶

- $\geq 51\%$: 0 points.
- 41-51%: 1 point.
- $\leq 40\%$: 2 points.

Peripheral artery disease 🦶

- 1 point if diagnosed.

Killip class 📶

- Killip I: 0 points.
- Killip II: 1 point.
- Killip III: 2 points.
- Killip IV: 3 points.

Optimal Medical Treatment 🏥

- -1 point if treated.

Abbreviations: LVEF=left ventricle ejection fraction.

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Evidence  Pen & Paper Calculation  Incidence Table 

Points	CIF 01 year	CIF 02 year	CIF 03 year	CIF 04 year	CIF 05 year	CIF 10 year
-2	0.03	0.04	0.06	0.07	0.08	0.16
-1	0.03	0.05	0.07	0.08	0.09	0.18
0	0.04	0.06	0.08	0.09	0.11	0.21
1	0.04	0.07	0.09	0.11	0.12	0.24
2	0.05	0.08	0.10	0.12	0.14	0.27
3	0.06	0.09	0.12	0.14	0.17	0.31
4	0.07	0.10	0.14	0.16	0.19	0.35
5	0.08	0.12	0.16	0.19	0.22	0.39
6	0.09	0.14	0.18	0.22	0.25	0.44
7	0.11	0.16	0.21	0.25	0.28	0.49
8	0.12	0.18	0.23	0.28	0.32	0.55
9	0.14	0.21	0.27	0.32	0.36	0.60
10	0.16	0.24	0.30	0.36	0.41	0.66
11	0.19	0.28	0.34	0.41	0.46	0.71
12	0.21	0.31	0.39	0.46	0.51	0.77
13	0.24	0.35	0.44	0.51	0.56	0.82
14	0.28	0.40	0.49	0.56	0.62	0.86
15	0.32	0.45	0.54	0.62	0.68	0.90
16	0.36	0.50	0.60	0.67	0.73	0.93
17	0.40	0.55	0.65	0.73	0.78	0.96
18	0.45	0.61	0.71	0.78	0.83	0.97
19	0.51	0.67	0.76	0.83	0.88	0.99
20	0.56	0.72	0.81	0.87	0.91	0.99
21	0.62	0.77	0.86	0.91	0.94	1.00
22	0.67	0.82	0.90	0.94	0.96	1.00

CIF: cumulative incidence function for MACCE, or expected MACCE incidence at a given timepoint.

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