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Meeting the assumptions of inverse-intensity weighting for longitudinal data subject to irregular follow-up: suggestions for the design and analysis of clinic-based cohort studies.

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Summary: Clinic-based cohort studies enroll patients on first being admitted to the clinic, and follow them as part of usual care, with interest being in the marginal mean of the outcome process. As the required frequency of follow-up varies among patients, these studies often feature irregular visit times, with no two patients sharing a visit time. Inverse-intensity weighting has been developed to handle this, however it requires that the visit process be conditionally independent of the outcome given the observed history. When patients schedule visits in response to changes in their health (for example a disease flare), the conditional independence assumption is no longer plausible, leading to biased results. We suggest additional information that can be collected to ensure that conditional independence holds, and examine how this might be used in the analysis. This allows clinic-based cohort studies to be used to determine longitudinal outcomes without incurring bias due to irregular follow-up.

MSC:

[92B15](#) General biostatistics

[62P10](#) Applications of statistics to biology and medical sciences; meta analysis

[92C50](#) Medical applications (general)

Keywords:

[longitudinal data](#); [inverse-weighting](#); [semi-parametric models](#); [observational data](#)

Software:

[CRAN](#); [MEMSS](#); [Muhaz](#); [S-PLUS](#)

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