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## Evaluating the use and limitations of the Danish National Patient Register in register-based research using an example of multiple sclerosis.

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Abstract: The Danish National Patient Register, Landspatientregistret (LPR), is a register of all hospital discharges and outpatient treatments in Denmark.

It is increasingly used in research so it is important to understand to what extent this can be used as an accurate source of information. Virtually all patients in Denmark with multiple sclerosis (MS) are reported to the Combined MS Registry (DMSR), so this was used as the standard which the LPR was compared against.

All residents of Denmark are assigned a unique Civil Register (CPR) number; this was used to compare data between registers. The LPR completeness was estimated by the proportion of cases from the DMSR that could be retrieved from the LPR. The LPR validity was estimated by the proportion of cases, listed in the LPR and DMSR, in whom the MS diagnosis could be confirmed as definite/probable/possible by the DMSR.

We found that 86.9% of those who were DMSR listed with an approved MS diagnosis were also listed in the LPR with a MS diagnosis. The diagnosis was valid in 96.3% of patients listed in the LPR when compared against the DMSR.

The low completeness reduces the usefulness of the LPR in epidemiological MS research, in particular incidence studies. The study also found that the completeness of the LPR could be increased to 92.8% by including LPR records from other departments in addition, but this reduced the validity of the LPR to 95.1%. However, these results cannot uncritically be applied to registration of other diseases in the LPR.

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