Epidemiological studies often use data from registers. Data quality is of vital importance for the quality of the research. The aim of this study was to suggest a structured workflow to assess the quality of veterinary national registers. As an example of how to use the workflow, the quality of the following three registers was assessed: the Central Husbandry Register (CHR), the database for movement of pigs (DMP) and the national Danish register of drugs for veterinary use (VetStat). A systematic quantitative assessment was performed, with calculation the proportion of farms and observations with “poor quality” of data. “Poor” quality was defined for each measure (variable) either as a mismatch between and/or within registers, registrations of numbers outside the expected range, or unbalanced in- and outgoing movements. Interviews were conducted to make a complementary qualitative assessment. The proportion of farms and observations within each quality measure varied. This study highlights the importance of systematic quality assessment of register data and suggests a systematic approach for such assessments and validations without the use of primary data.