Comments to the Authors,

This manuscript studied the distribution and risk of all second primary cancers combined after a specific first primary cancer in German and Swedish cancer registries with a huge sample size: 27 million Germans and 9 million Swedes. The authors found a significant increase of the risk of all SDPCs combined after a specific first primary cancer both in Germany and Sweden dataset with rigorous confounder adjustment. The dataset and the conclusion are very important and valuable, In general, I'd recommend publication if the authors can address the following concerns.

**Major Compulsory Revisions**

1, the relationship of incidence (frequency) between SDPC and FPC would be very interesting and the present data can show the reader such information. Please prepare a figure to compare the frequency of SDPCs in Table 1 and Appendix Table 1.

2, please take race and smoking status as the confounders, respectively, and then conduct similar SIRs analysis in German and Swedish population database.

**Minor Essential Revisions**

1, please evaluate the influence to SIRs from age, sex as well as calendar period

2, the author mentioned “overall Increased SIRs suggest common etiology of SDPCs after most of first primary cancers and similar registration practices for those cancers in the two populations.” However, which one of the registration practices and common etiology of FPC would be the most important components should be discussed.

3, How to interpret that the SIRs were prevalently higher in German database than Swedish database in Table 2, Table 3, Table 4.

4, please provide the list of preferred first-second cancer pairs and corresponding significance (P-value) to validate the assumption that “the risk of a SPC depends greatly on the specific type of first-second cancer pair regardless whether a SPC was the same type of first cancer and, there is substantial heterogeneity in the risk of an individual SPC after different type of first primary cancer”.

5, Although the authors have provided clear tables to show that “elevated overall risks after 23 cancers (out of 29 cancers in total) in Germany and after 24 cancers in Sweden and among them, risks after 19 cancers were elevated in both populations”, such strong trend was not observed in our data registration. The code should be attached or double check again so that we can make sure such great discovery as the true story.

**Discretionary Revisions**

1, the reason why to select German and Swedish cancer database should be explained. Why not others?

2, How about replacing “all second primer cancer” with “second discordant primary cancers” in the title of the manuscript: “Distribution and risk of the second discordant primary cancers combined after a specific first primary cancer in German and Swedish cancer registries.”