

## COMMENTARY

# CURRENT CANCER PROFILES OF THE ITALIAN REGIONS: SHOULD CANCER INCIDENCE BE MONITORED AT A NATIONAL LEVEL?

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The issue of *Tumori* dedicated to a careful analysis of cancer profiles in Italy<sup>1</sup> is the result of an important effort aimed at estimating cancer incidence for the whole national territory, only partially covered by cancer registries. The MIAMOD method, estimating cancer incidence on the basis of observed mortality and expected survival, is no doubt a valuable method, which provides precious information for cancer control planning in those Italian areas where direct information on incidence is lacking<sup>2</sup>.

Nevertheless, while appreciating the usefulness of an initiative aimed at providing surrogate estimates of incidence, this stimulates discussion on whether cancer estimates only are sufficient for three fourths of the country, or, on the contrary, a cancer registry system should be extended to the whole nation, as in other European countries.

Mortality based cancer incidence estimates may be sufficient for gross analysis of cancer trends, but their precision and reliability is strongly dependent on the assumption that cancer survival is the same all over the nation, which might not be the case (e.g., given the different geographic distribution by stage at diagnosis for some cancer types, as cancer awareness and screening are not the same on the Italian territory).

Cancer incidence estimates require a large source mortality database to avoid statistical fluctuation, which does not allow reliable estimates for limited areas, such as at a District level, whereas mortality differences among adjacent Districts are known which suggest substantial differences in incidence. Knowledge of cancer incidence at a District or sub-District level may be crucial for local cancer control planning.

Moreover, whatever precise and reliable estimates may be, they do not provide information at an individual level. Information of cancer incidence at an individual level is fundamental for many aspect of cancer control:

- Linkage of individual incidence and mortality data is needed to assess survival, which is an important indicator of treatment outcomes, but also needed to assess

cancer prevalence and lifetime with cancer, both important indicator for assessing resources needed for cancer control (e.g., follow-up facilities and cost).

- Linkage to individual incidence is necessary for any analysis of diagnostic accuracy: for example, the performance of any diagnostic procedure aimed at cancer detection, could not be assessed unless information on cancer incidence following a negative test is available.

It is quite evident that extending a cancer incidence registry to the whole nation would be of great benefit to cancer management in Italy. In such a perspective, of course the issue will be raised that this would be too a demanding and costly enterprise, which can not be afforded on the short run. This is not true.

- Mortality at an individual level is currently recorded in Italy since a long time, and evidence suggests that mortality data are of relatively good quality. The procedure is still based on filling out forms with limited pre-coding but conversion to a Web based system would not be difficult, and essentially a matter of political will, as access to the Web is widespread in Italy, and Web is currently used in the whole nation for many other purposes. Running mortality data collection through a web based properly designed software would allow exact coding of information and would reduce the frequency of controversial cases.
- Apart from mortality, cancer registry data in Italy come mainly from pathology departments and hospitalization records. The latter database (SDO = Hospital Discharge Records) has been implemented in all Italian Regions, being created essentially for administrative purpose, and is currently computerized. Most pathology departments in Italy have electronic archives, and extending computerization to all the national territory would not be an impossible effort. Thus, all the main sources of information for a cancer registry would be available in a computerized form and data linkage would be substantially speeded up.

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Of course cancer registries currently collect other information, such as stage and grading, but the registration of incidence only on a national basis would still represent a great progress and be of great advantage as compared to the present situation.

Cancer incidence estimates for all cancers together, not stratified by sex, age, and cancer site, may be used for international and historical gross comparisons, but are not an useful basis for cancer control measure planning. Much more interesting data are provided on most important cancer sites, which allow a few comments and some considerations as far as relative cancer control measures (ongoing and to be taken) are concerned.

- *Colorectal cancer*<sup>3</sup>. A slight but consistent recent drop in mortality and the stabilization of incidence for women is not easy to explain, but probably can not be ascribed to screening, which showed a negligible national coverage until 2005. Mortality figures are probably influenced by an average improvement of treatment. Incidence stabilization in women can not be explained with screening, which, when existing, has been offered to both genders with similar attendance, neither with dietary changes (incidence is rising in men, which are exposed to the same diet). The dramatic rise in incidence in males encourages to invest more resources in colorectal cancer screening, the implementation of which is presently a rather slow process, but also in diet control. It is evident that diet, which represents the major risk factor for colorectal cancer, has been changing in the last decades in Italy, with no campaign to promote a more healthy diet being launched on a national basis (resistance from food industry may be a reason), until 2007 (Guadagnare Salute campaign, in accordance with European Community guidelines).
- *Lung cancer*<sup>4</sup>. A marked drop both in incidence and mortality in males is a good demonstration of how smoke quitting may be beneficial, and reduces the interest for secondary prevention by screening, as primary prevention is really highly effective. On the other hand, the increase in smoking prevalence and cancer incidence and mortality in women shows that the recent national anti-smoking campaign has major limitations, probably as it was essentially based on reducing spaces where smoking is allowed and on rising cigarette prices, but limited investment was done in spreading a convincing message which might really enhance awareness, particularly in young women.
- *Gastric cancer*<sup>5</sup>. Again, a continuous drop in incidence and mortality is another demonstration that healthy diet is an effective measure of cancer control. The negative aspect is that in this case no campaign or aware-

ness is involved, as dietary changes associated with gastric cancer reduction were essentially not on a volunteer basis, but mainly due to changes in food conservation techniques.

- *Breast cancer*<sup>6</sup>. Observed mortality reduction probably can not be ascribed to screening. Substantial screening coverage has been obtained in northern-central Italy only recently, and sufficient time has not yet elapsed (6 to 7 years to see initial drop in mortality, as suggested by controlled trials) for a screening-related mortality reduction to appear. Observed mortality reduction is most likely due to treatment improvement, as a similar mortality trend is observed also in the South, where screening, either organized or opportunistic, is almost absent. Selective incidence rise in northern-central regions is probably due to a screening effect (lead-time and a minor overdiagnosis effect), which is not present in the South, where screening is much more less diffused.
- *Prostate cancer*<sup>7</sup>. Italian figures (particularly in the North) confirm what is happening in most western countries. A dramatic rise in incidence no doubt depends on PSA opportunistic screening (PSA has a detection lead time in excess of 10 years), and is made much more dramatic by the absence of mortality reduction (a slight drop in mortality might however be explained with improved medical treatment, a feature common to most western countries, also where [UK] PSA opportunistic screening is almost absent). The only certain screening effect is overdiagnosis (and overtreatment) of non-aggressive, latent carcinomas which would never have been diagnosed in absence of screening. Overdiagnosis has been estimated to be at least 50% (1 of 2 screen detected cancers is overdiagnosed), but may rise to 250-300% with more aggressive screening. The dramatic negative effect of screening due to unnecessary side effects (impotence, major urinary incontinence) of overtreatment is not compensated by screening efficacy (mortality reduction by screening has never been demonstrated thus far by properly designed studies). Recommending screening is clearly unethical, but irresponsible and ignorant screening advocates are many. Italy seems to be no exception.

Overall, this issue of *Tumori* offers a precious insight in the scenario of cancer incidence in Italy. Resulting evidence on incidence trends at major cancer sites is consistent with what has been observed in most western countries. The MIAMOD method allows for filling the information gap due to the limited national coverage by cancer registries, and provides incidence estimates which may be valuable for cancer control planning on a regional basis.

## References

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