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What are GPs' preferences for financial and non-financial incentives in cancer screening? Evidence for breast, cervical, and colorectal cancers

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ABSTRACT

General practitioners (GPs) play a key role in the delivery of preventive and screening services for breast, cervical, and colorectal cancers. In practice, GPs' involvement varies considerably across types of cancer and among GPs, raising important questions about the determinants of GPs' implication in screening activities: what is the relative impact of financial and non-financial incentives? Are GPs' preferences for financial and non-financial incentives cancer-specific? Is there preference heterogeneity and how much does it differ according to the screening context? This study investigates the determinants of GPs' involvement in cancer screening activities using the discrete choice experiment (DCE) methodology. A representative sample of 402 GPs' was recruited in France between March and April 2014. Marginal rates of substitution were used to compare GPs' preferences for being involved in screening activities across three types of cancers: breast, cervical, and colorectal. Variability of preferences was investigated using Hierarchical Bayes mixed logit models. The results indicate that GPs are sensitive to both financial and non-financial incentives, such as a compensated training and systematic transmission of information about screened patients, aimed to facilitate communication between doctors and patients. There is also evidence that the level and variability of preferences differ across screening contexts, although the variations are not statistically significant on average. GPs appear to be relatively more sensitive to financial incentives for being involved in colorectal cancer screening, whereas they have higher and more heterogeneous preferences for non-financial incentives in breast and cervical cancers. Our study provides new findings for policymakers interested in prioritizing levers to increase the supply of cancer screening services in general practice.

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1. Introduction

Cancer is a major health issue worldwide (WHO, 2008). Preventive care, such as screening, is important for reducing the mortality and burden of cancer (Gellad and Provenzale, 2010; Kerlikowske et al., 1995; Quinn et al., 1999). In many healthcare systems, general practitioners (GPs) play an important role in delivering preventive care and appropriate recommendation for the screening of breast, cervical, and colorectal cancer (Carrieri and Bilger, 2013; Jensen et al., 2012; Weller, 1997). In a study analysing decision-making processes for several cancers among a national sample of US adults, providers such as GPs were cited as the most highly rated information source for initiating screening discussion

and recommending screening (Hoffman et al., 2010). However, GPs' involvement in cancer screening varies considerably across types of cancer and among GPs (Federici et al., 2005; Ganry and Boche, 2005). In a representative survey conducted by the French National Institute of Cancer (INCa), GPs reported that they "routinely" check breast, cervical, and colorectal cancer screening in 56%, 45% and 34% of consultations (Bungener et al., 2010). This somewhat low level of screening performance and the between-cancer variability raise important questions about the determinants of GPs' participation in cancer screening activities. For instance, what makes GPs willing to be involved in cancer screening activities? Do GPs differ in their attitudes towards different types of cancer?

Previously, it has been suggested that financial incentives such as pay-for-performance (P4P) would greatly influence GPs' decisions to deliver preventive services for cancer (Armour et al., 2004; Town et al., 2005). For instance, in France, GPs earn

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financial bonuses in addition to their fee-for-service (FFS) remuneration if they reach (or draw closer to) a target rate of 80% of women aged between 50 and 74 years having been screened for breast cancer in the past two years. In France, GPs are mostly paid on a FFS base whereas in the Scandinavian countries and in the UK, doctors are primarily paid through a per capita mechanism. The latter has been shown to be more favorable to the supply of prevention while FFS provides no incentive to supply preventive care if not compensated (Franc and Lesur, 2004; Hennig-Schmidt et al., 2011). Economic theory predicts that monetary incentives may induce optimal provision of healthcare services but the empirical analyses show mixed results (Eijkenaar et al., 2013; Mannion and Davies, 2008) and nonsignificant results for preventive care (Kiran et al., 2014; Li et al., 2014; Sicsic and Franc, 2016). Initially, the low performance of P4P has been explained by inadequate level of financial incentives (Town et al., 2005) and their temporal nature, as prevention may have long or mid-term returns of investment. Indeed, P4P remuneration is based on an annual measure of GPs' activity in terms of cancer screening provision, whereas the benefits of screening are expected in much longer term. Other studies have suggested potential unintended consequences of financial incentives, particularly the crowding out of doctors' intrinsic (non-financial) motivations by extrinsic (financial) rewards (Janus, 2010; Sicsic et al., 2012), which may contribute to explain the low impact of P4P on GPs' prevention activities.

Other non-financial factors are likely to play a significant role in GPs' decisions regarding cancer screening. These non-financial factors include physicians training, receiving feedback, and assistance from other non-health professionals (McIlfatrick et al., 2013; Sabatino et al., 2008). Previous studies investigated doctors' preferences for key job attributes concerning location choices in general practice by focusing on the role of both pecuniary and non-pecuniary incentives (Günther et al., 2010; Holte et al., 2015; Scott, 2001). Holte et al. (2015) found that additional income had smaller impact on GPs' choices than improvements in non-monetary attributes such as opportunity for professional development. To the best of our knowledge, there is no similar evidence for the role of pecuniary and non-pecuniary incentives in GPs' preferences for cancer-screening activities.

This study offers to bridge this gap by investigating how GPs trade financial and non-financial incentives when making decisions to be involved in screening activities for three types of cancers, namely breast, cervical, and colorectal cancer. For these cancers, the effectiveness of screening is recognized and guidelines are available (Saslow et al., 2012), despite recent debates about the benefits and harms balance for breast cancer screening (Gøtzsche and Nielsen, 2011). A better understanding of how financial and non-financial incentives influence GPs' decisions and interact with each other will help to improve effectiveness, quality, and sustainability of screening programmes. Given the considerable variability in GP's involvement in cancer screening activities, it is important to understand how GPs' preferences differ across both cancers and GPs themselves. We address this issue by investigating heterogeneity in GPs' preferences for cancer screening programmes by fitting Hierarchical Bayes mixed logit models and by comparing preferences across breast, cervical, and colorectal cancers.

In the next section, we summarize the literature on interventions to improve delivery of preventive services and review the French context for cancer screening. In section 3, we present the discrete choice experiment (DCE) survey and the statistical methodology used to respond to the different research questions. The results are presented in section 4 and discussed in section 5.

2. Literature

2.1. Interventions to increase delivery of preventive services

Much of the research to date has focused on evaluating the efficacy of interventions aimed at promoting behaviour change among healthcare providers (Ellis et al., 2005; Grimshaw et al., 2001; Sabatino et al., 2012, 2008; Zapka and Lemon, 2004). In their literature review, Grimshaw et al. (2001) found that active interventions, such as reminders and educational outreach, were effective in changing healthcare provider behaviour, whereas less active interventions (e.g. attending conferences, reading medical journals) were not effective. Another study found that no single intervention was effective across the cancer continuum (Ellis et al., 2005). Interventions that were effective in several topic areas included the use of office systems (reminders and prompts), health care provider advice, removal of financial barriers, and multi-component interventions. In their literature review, Sabatino et al. (2008) identified ten studies that reported the use of provider assessment and feedback to increase recommendation for breast, cervical, and colorectal cancer screening. They concluded that assessment and feedback interventions produced positive effects in both trainee and non-trainee physician groups but financial incentives alone were not effective. The result was confirmed four years later in an updated literature review (Sabatino et al., 2012).

The conclusions obtained in these various studies, although different, are not necessarily contradictory. It is possible that some screening incentives would act as complements and then their valuation would differ depending on whether they are combined or not. Besides, the context in which the various screenings are enrolled may influence how the incentive is perceived by GPs. It is thus essential to analyze more precisely the French screening context and the role played by the GP in each context.

2.2. The French screening context for cancer

In France, a national program for breast cancer screening has been implemented since 2004: women aged 50–74 years are mailed an invitation to perform a free mammogram (free at the point of use) in a radiological centre. They can choose a doctor (e.g. a GP or a gynaecologist) who will be informed of the results of the mammogram. Thus, referral GPs might not always be informed of the realization of a mammogram by their eligible patients, and this lack of information could constitute a barrier and hinder their involvement in breast cancer screening (Liberalotto, 2012). Accordingly, systematic communication of the screening results to the referral GP could be one interesting method to promote.

To increase the take-up of colorectal cancer screening, a national program was implemented in 2009: men and women between 50 and 74 years are invited by mail to perform a free faecal occult blood test (FOBT) in a biological centre, and the referral GP should always be informed of the results. The GP takes a leading role in facilitating patient adherence to the national programmes: he/she is supposed to propose the test and explain the modalities of implementation and the consequences in case of positivity. Yet, GPs report being the initiators of a discussion about colorectal cancer screening in less than half of the cases (Bungener et al., 2010). One possible explanation could be related to the time required for its proposal in consultation and explanation of how it works. We assume that GPs could be sensitive to qualified staff assistance and/or additional compensation to offset the effort.

Cervical cancer screening (based on smear tests) has not yet been included in a national program (only experimentations are

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