



## RESEARCH ARTICLE

### SURVEY ON ONLINE MEDICAL CONSULTATION IN CURRENT SCENARIO

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#### ABSTRACT

While the internet has long been a source of medical information, it has only recently been used for online private patient-doctor consultations. Online Medical Consultation (OMC) is now offered by many providers internationally with diverse models. This study reports a review of the literature on OMCs and an empirical analysis of existing OMC web sites to explore their major themes, these features have been studied for a better understanding of the promise on which these services operate. Resultant study shows OMC is a growing phenomenon featuring several interaction modalities, serving various medical consultation purposes, and accessible to consumers throughout the world. The contribution of this work is to present the current status and synthesize features of available OMC services

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## INTRODUCTION

Online Medical Consultation (OMC) is the term used in this paper to refer to internet-based remote patient-doctor (consumer-provider) medical consultations. OMC can be regarded as part of telemedicine where the term "Remote Consultation" refers to "consultation via remote telecommunications, however, this paper distinguishes OMC from remote consultations in three main aspects. First, OMC not refer to non-internet-based consultations like telephone-only or radio-based consultations. Second, OMC carries a paradigm shift in the way patients seek medical consultation where they can independently "shop around" for medical consultation the same way they do for online services. Third, OMC is about direct patient-doctor consultations, therefore it will not include doctor-doctor (provider-provider) consultations or consultations for health education and other purposes. OMC as a concept goes beyond the common telemedicine practices which are usually limited to specific medical categories for patients within specific geographical/geopolitical regions. With OMC, the service is usually open to patients with a wide range of medical needs coming from different regions. Patients may choose or be assigned to any doctor/ care provider who is available online. The aim of the research reported in this paper is to explore OMC practices on the global level.

It examines features and themes evident in the literature and in a range of currently operating OMC services.

### Literature review

Databases including MEDLINE and Inspect we researched for relevant publications mainly within the past five years. Multiple search terms were used, combining "Online consultation" with "health or medical", using the MeSH term "remote consultation", or using "e-visit", "consultation", and "video consultation". A convenience sample of current OMC web sites was derived from sites that appeared among Google's first one hundred results when searching for "online health/medical consultation" or "online doctor". These sites were examined against our OMC definition to eliminate web sites that did not match with the inclusion criteria such as health information sites, health advertising, generic wellbeing advice, automated symptom checkers, telephone-only consultations, or sites with no private channel for communicating information. This left 28 web sites which were examined more closely to determine the modality of the consultation, the intended purpose of the consultation, the cost, the medical specialty, the geographical coverage, web site establishment date and the geographic location of the service provider. Data were sourced directly from the web sites, requested from the providers by email or founding public media reports. The majority of papers provided an evaluation of remote consultation use for a particular medical practice but not for a large group. They mainly discussed medical implications, communication styles, and information exchange.

Some eVisit studies evaluated consumers' demographics, disease categories, response times, and some impact and financial aspects (Padman *et al.*, 2009; Mehrotra *et al.*, 2013; Adamson and Bachman, 2010; Albert *et al.*, 2011). Proceedings of the 8th Australasian Workshop on Health Informatics and Knowledge Management (HIKM 2015), Sydney, Australia, 27 - 30 January 2015, 97. Diverse terminology is used to label various medical services delivered through internet and there are no universally accepted definitions of these terms (Bailey, 2011). Consultations over internet have many names: tele consultation (Verhoeven *et al.*, 2010; Deldar *et al.*, 2011), e-Visit (Padman *et al.*, 2009; Mehrotra *et al.*, 2013; Handler, July 2013; Adamson and Bachman, 2010; Albert *et al.*, 2011), e-Consultation (Liddy *et al.*, 2013; Drop *et al.*, 2012), video consultation (Jiwa and Meng, 2013; Joseph *et al.*, 2012; Smith *et al.*, 2012), or onlinemedical consultation (Brookes *et al.*, 2012; Bailey, 2011; Braverman and Samsonov, 2011; Lu *et al.*, 2011; Medaglia and Andersen, 2010). In the US, the term eVisit is more common. However, the term is associated in many references with the asynchronous form of OMC (Gidwani *et al.*, Mehrotra *et al.*, 2013). In Australia, the common term is "video consultation", apparently referring to the synchronous form of OMC. To have a balanced and clear reference for both forms, the term online medical consultation (OMC) appears to be most appropriate. With OMC, patients don't have to leave their homes or places of work, sit in traffic then sit in a room with other patients, perhaps catch or cause an infection meantime, and then return to where they came from. A baby's mother may not need to go with her child to a clinic for diagnosis of a simple condition such as diaper rash that doctors can accurately recognize from some images. Patients with chronic diseases may benefit from OMC to perform their regular routine checks and get test results with no need to go to a clinic unless requested. OMC is a promising innovation. Several US publications have reported that eVisits were found to be feasible with high patient satisfaction levels (Mettner, 2009; Albert *et al.*, 2011; Adamson and Bachman, 2010). Internet-based video consultations have been practiced successfully in Australia in fields such as psychiatry, Emergency care, and paediatrics (Moffatt *et al.*, 2010; Richardson *et al.*, 2009). Consumers have been reported to be in favor of OMC services. An evaluation study by researchers from Pittsburgh University (USA) reported that the eVisit services offered benefits to patients in terms of access, speed and convenience, without increasing the risk of inappropriate or incomplete care (Albert *et al.*, 2011). Over 90% of the eVisit patients indicated that their health problem was addressed fully during the eVisits, concluding that it is an appropriate alternative to office visits. The same study suggests that further investigation is required, to compare eVisit outcomes with office visits for similar medical conditions, and to investigate providers' perspectives. On the other hand, concerns are being raised regarding safety and quality of OMC practices. A study in Australia showed that only 29% of the study population (young people) were willing to participate in a video consultation regarding their sexual health issues, while 63% gave higher preference to telephone consultation (Garrett *et al.*, 2011).

## Findings from web site analysis

### OMC growth

OMC services have grown at an average rate of 150% every five years since the year 2000 (Figure 1).

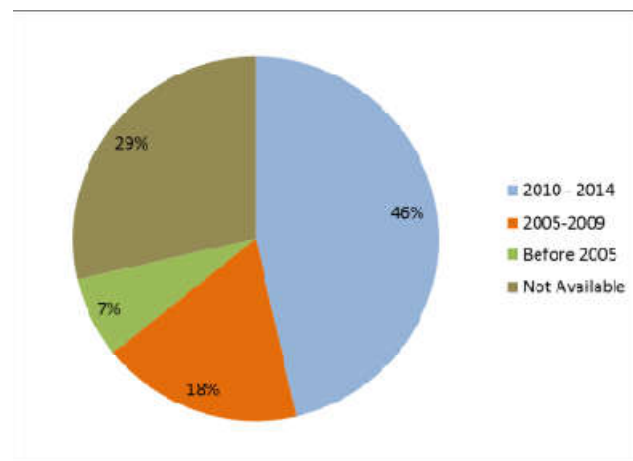


Figure 1. Date of establishment of 28 OMC sites

### Modality

Each OMC site utilized several modalities (Table 1). Telephone was used in conjunction with other internet based modalities in all the services.

Private Forum	Video conference	Telephone	Email	Smart Phone	Public Forum
70%	62%	40%	50%	40%	15%

### Medical Specialty

Information obtained from almost all OMC sites (96%) showed no restriction to a specific medical specialty. They appear to have flexibility to expand services and ability to recruit specialist consultants in all fields. Some sites claim to have hundreds of participating consultants from multiple countries.

### Conclusion

OMC is a growing phenomenon featuring several interaction modalities, serving various medical consultation purposes, and accessible to millions across the world. Online medical consultations are readily accessible and very topical.

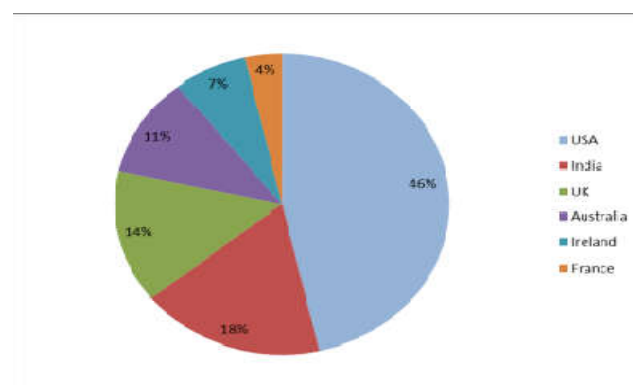


Figure 2. Country operation base of 28 OMC sites

A simple internet search of 'online doctor', or 'online medical consultation', returns hundreds of links for sites ranging from free ask-the-doctor sites to highly prestigious sites with sophisticated diagnostic tools and multi-interactive options. OMC may be unevenly available worldwide. The countries of operation for OMC sites may need further analysis

to correlate with local factors. Factors may include scale of internet services, recognition by professional bodies, and availability of reimbursement systems, not to mention cultural and linguistic factors that may have significant impact on OMC raise. Future research is in progress to fully describe OMC models of service and models of care, and to investigate OMC services adoption and quality from both providers' and consumers' perspectives. Since OMC providers and consumers are more autonomous than conventional telemedicine, there is a need for their quality to be evaluated using innovative criteria that are adapted to their unique nature. Professional, legal, and financial systems will need to be modified in order to create the proper environment for OMC growth, and at the same time to ensure good health outcomes with patient and clinician satisfaction. The challenges and opportunities for health service provider organizations responding to the rise of OMC services also merit further investigation. Our work casts light on a new avenue for consumer choice, an open market space for health care providers, and a field of research with many unanswered questions.

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