KNOWLEDGE, BELIEFS AND PRACTICES OF DIETITIANS AND DOCTORS IN SOUTH AFRICA ON THE USE OF THE INTERNET IN HEALTHCARE

by

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DECLARATION

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the owner of the copyright thereof (unless to the extent specifically otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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ABSTRACT

Background: In Africa, internet access and use is plagued by numerous barriers. Whilst South Africa (SA) boasts a better population penetration than the rest of Africa there is a lack of regulation regarding the internet and e-mail use amongst health professionals and their patients. The aim of this study was to assess the use of the internet amongst dietitians and medical doctors (MDs) in clinical practice in SA and draft a policy on such usage amongst health professionals and their patients.

Methods: A cross-sectional analytical web-based survey was conducted amongst registered dietitians and MDs. A cover letter including a hyperlink to the self-administered questionnaire was e-mailed to all dietitians and a proportionate, stratified random sample of MDs with contactable e-mail addresses. The questionnaire consisted of open and closed questions, including demographics, influence of the internet on the quality of care of patients, quality control with web resources and aspects of information technology (IT) which were recommended by health professionals to be incorporated as part of undergraduate health science education

Results: A total of 176 health professionals participated in the study (106 dietitians and 70 MDs). The mean age of the dietitians was 32.6± (8.0) and the MDs 50.5± (8.9). The majority of the respondents in this study population were White (82%) females (67%). On average, practitioners had been in practice for 9.1(8.0) years. The majority of dietitians (58%) and MDs (68%) had access to the internet at both their practice or workplace and their home. More dietitians (65%) than MDs (41%) were using e-mail or internet. MDs did not use the internet for research purposes, whilst a fifth of dietitians (21%) reported using the internet as a research tool. A greater percentage of the sample [MDs (69%) and dietitians (82%)] reported that, the internet had improved the quality of care of their patients. The dietitians (60%) and MDs (53%) in this study sample were unclear about how to source information and determine the reliability or accuracy of the information obtained from internet resources.

Conclusion: Internet is incorporated into the practice of most dietitians and to a lesser extent by MDs. In this study, the need for training amongst health professionals regarding the use of the internet was highlighted. The study reflects that even though health professionals were unsure of the credibility of the internet information resourced, it did not stop the use of the internet in the practice. This is an area of concern, since it could potentially result in the distribution of misinformation. This warrants regulation on the use of the internet in health practices in SA. A policy on the use of IT in health care practice has been drafted. Further research on the use of IT in the healthcare practice is required before the policy can be finalized. The advantage is that some elementary information is now available. The challenge is to ensure that the time lapse between additional research, policy finalization and policy implementation is kept to a minimum.

OPSOMMING

Agtergrond: In Afrika is internet toegang en gebruik met baie hindernisse belas. Alhoewel Suid-Afrika (SA) met 'n beter bevolkingspenetrasie as die res van Afrika spog is daar 'n gebrek aan regulasie in verband met internet en e-pos gebruik tussen gesondheidswerkers en hul pasiënte. Die doel van hierdie studie was om die gebruik van die internet deur dieetkundiges en mediese dokters (MDs) in kliniese praktyk in SA te assesseer en om 'n konsepbeleid rakende sulke gebruik tussen gesondheidswerkers en hul pasiënte op te stel.

Metode: 'n Dwarssnit analitiese web-gebaseerde opname is met geregisteerde dieetkundiges en MDs onderneem. 'n Dekkingsbrief met 'n webskakeling (hyperlink) tot die selfgeadministreerde vraelys is aan alle dieetkundiges en aan 'n eweredig, gestratifiseerde ewekansige steekproef van MDs met kontakbare e-pos adresse gestuur. Die vraelys het uit oop en toe vrae bestaan, insluitend demografie, invloed van die internet op die kwaliteit van sorg van pasiënte, kwaliteitskontrole met web-hulpmiddels en aspekte van informasie tegnologie (IT) wat deur gesondheidswerkers aanbeveel was om deel te word van voorgraadse gesondheidswetenkaplike onderrig.

Resultate: 'n Totaal van 176 gesondheidswerkers het aan die studie deelgeneem (106 dieetkundiges en 70 MDs). Die gemiddelde ouderdom van die dieetkundiges was 32.6± (8.0) jaar en die MDs 50.5± (8.9) jaar. Die meerderheid respondente in hierdie studie populasie was blank (82%) en vroulik (67%). Oor die algemeen was praktisyne vir 9.1± (8.0) jaar in praktyk. Die meerderheid dieetkundiges (58%) en MDs (68%) het toegang tot die internet by beide hul praktyk of werkplek en hul huis. Meer dieetkundiges (65%) as MDs (41%) het e-pos of internet gebruik. MDs het nie die internet vir navorsingsdoeleindes gebruik nie, terwyl 'n vyfde van dieetkundiges (21%) raporteer het dat hulle die internet vir navorsingsdoeleindes gebruik het. 'n Groot persentasie van die populasie [MDs (69%) en dieetkundiges (82%)] het gerapporteer dat die internet tot 'n verbetering in sorg van hul pasiënte gelei

het. Die dieetkundiges (60%) en MDs (53%) in hierdie studie was onseker hoe om informasie te verkry en die betroubaarheid en akuraatheid van die informasie vanaf internetbronne te bevestig.

Opsomming: In hierdie studie word internet in die praktyke van die meerderheid dieetkundiges en tot 'n mindere mate in die van MDs geinkorporeer. Die noodsaaklikheid vir opleiding in die gesondheidsberoepe met betrekking tot die gebruik van die internet is aan die lug gebring. Hierdie studie weerspieël dat alhoewel gesondheidswerkers onbewus was van die geloofwaardigheid van internet informasie, dit nie die gebruik van die internet in hul praktyk gestop het nie. Dit is 'n area van kommer aangesien dit potensieel na die verspreiding van misinformasie kan lei. Dit motiveer dus reguleering van die gebruik van die internet in gesondheidspraktyke in SA. 'n Beleid oor die gebruik van IT in gesondheidspraktyke is in konsepvorm opgetrek. Verdere navorsing oor die gebuik van IT in gesondheidspraktyke word benodig om die konsepbeleid te finaliseer. Die voordeel is dat basiese inligting nou beskikbaar is. Die uitdaging is om te verseker dat die tydsduur tussen addisionele navorsing, beleidsfinaliseering en beleidsimplementering tot 'n minimum gehou word.

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LIST OF TABLES

No	TITLE	PAGE
2.1	Stratified sample of medical doctors per sub-speciality	31
3.1	Socio-demographic information the of the dietitians and medical doctors	39
3.2	Indicators of how e-mail is incorporated into the practice of dietitians and medical doctors	41
3.3	Guidelines incorporated by dietitians and medical doctors as part of e-mail communication with patients	42
3.4	Reasons why dietitians and medical doctors incorporated a website as part of their practice	43
3.5	Reasons why dietitians and medical doctors did not have a website as part of their practice	44
3.6	Actual comments of dietitians and medical doctors regarding their needs relating to internet and e-mail use	50
6.1	Recommendations: IT communication in health	63

LIST OF FIGURES

No	FIGURES	
1	Conceptual framework	4
3.1	Items which are checked by Dietitians and Medical Doctors before referring patients to the internet	45
3.2	Items considered most important by Dietitians and Medical Doctors to check when using web resources	47

LIST OF ADDENDA

No	ADDENDUM
1	Florida State University Questionnaire
2	HONcode Principles
3	Survey instrument – Questionnaire
4	Cover Letter
5	Study approval

ABBREVIATIONS

ICT	Information and Communication Technology
WHO	World Health Organization
MDG	Millennium Development Goals
WHA	World Health Assembly
ADSA	Association for Dietetics in South Africa
HPCSA	Health Professionals Council of South Africa
MDs	Medical Doctor(s)
US	United States of America
UK	United Kingdom
PC(s)	Personal Computer(s)
HINARI	Health Internetwork Access to Research Initiative
AIM	African Index Medicus
IT	Information technology
SA	South Africa
SAMA	South African Medical Association
IBHI	Internet Based Health Information
EBP	Evidence Based practice
CPD	Continuous Professional Development
CHN	Canadian Health Network
HIV	Human Immuno-deficiecincy Virus
AMA	American Medical Association
Honcode	Health On the Net Foundation Code of Conduct
INASP	International network for the Availability of Scientific Publications
mean± (SD)	Means and (Standard Deviations)
ANOVA	Analysis of Variance

TABLE OF CONTENTS **PAGE**

	Title	i
	Declaration	ii
	Abstract	iii
	Opsomming	v
	Acknowledgements	vii
	List of Tables	viii
	List of Figures	viii
	List of Addenda	ix
	Abbreviations	x
CHAPTER 1: LITERATURE REVIEW		1
1.1	Introduction	2
1.2	Internet growth	5
2	*Use Of The Internet By Health Professionals*	6
2.1	Standards of practice and evidence based practice	6
2.2	Continuous professional development (CPD)	6
2.3	The health professional and information resources	7
2.4	Internet used as a research / screening tool in private practice	8
2.5	Benefits of the internet	9
2.6	Achievements with the internet	9
3	*Factors Influencing The Use Of The Internet In Healthcare*	10
3.1	Hard factors: impact on the professional and the patients use of the internet in the health practice	11
3.1.1	Access to the internet	11
3.1.2	Cost of web-based information	12
3.1.3	Bandwith	12
3.2.	Soft factors: health professionals attitudes to ICT and change in technology	13
3.2.1	Awareness of web resources	13
3.2.2	Web resource barriers	14
3.2.3	Lack of capacity and capacity building	14
3.2.4	Barriers to the use of web-based resources in the practice	15
3.3	Factors influencing the successful use of the internet for health promotion	16
3.3.1	Human factors	16
4	*INCORPORATING THE INTERNET INTO TERTIARY EDUCATION*	18
4.1	Students' health information literacy	18
5	*Changes In Health Practice- Incorporation Of The Internet Into The Practice*	19
5.1	Health practice of yester-year	19
5.2	Use of e-mail in the health practice	19
5.3	Reasons for changes in the health practice	20
6	*What Are Internet Health Consumers Searching For On The Web?*	21
6.1	Patient benefits of seeking internet health information	21
7	*Health Professionals Perception Of Patients Use Of Internet Health Information*	22
8	*Responses Of Health Professionals To Health Seeking Behaviour Of Patients*	22
9	*Is Vigilance Required When Using The Internet ?*	24
10	*Regulation Of Use Of The Internet/ Quality Control Standards For Web-Based Health Information*	25

TABLE OF CONTENTS		PAGE

CHAPTER 2: METHODS 27

2.1 Aims and objectives 28
2.2 Study design 28
2.3 Study population 29
2.3.1 Selection criteria 29
2.3.2 Sample size 29
2.3.3. Sampling procedure 30
2.3.3.1 Dietitians sample 30
2.3.3.2 Medical doctors sample 30
2.4 Research instrument 31
2.5 Data collection 33
2.6 Data analysis 34
2.7 Ethical considerations 35
2.7.1 Ethical review committee 35
2.7.2 Informed consent 35
2.7.3 Patient confidentiality 35
2.7.4 Language 36

CHAPTER 3: RESULTS 37

3.1 Sample 38
3.2 Socio-Demographic Information 38
3.3 Characteristics of e-mail / internet use by dietitians and medical doctors 40
3.3.1 Point of access 40
3.3.2 Incorporation of e-mail/internet into the practice 40
3.3.3 Frequency of use 42
4 *Characterization Of Internet Use Other Than E-Mail i.e. Website Availability In The Practice* 43
4.1 Reasons why dietitians and medical doctors excluded a website from their practice 44
4.2 Reasons why the internet was utilized 44
5 *Characteristics Of Internet Information Quality Control Practices By Dietitians And Medical Doctors* 45
6 *Perceptions Of Dietitians And MDs Regarding The Most Important Internet Information Quality Control Practices* 47
7 *Opinion Of Dietitians And MDs On The Need To Incorporate Training On The Use Of The Internet As Part Of Undergraduate Health Science Education* 48
8 *Comparison Of Characteristics, Perceptions And Opinions Of Dietitians And MDs Regarding The Use Of The Internet/E-Mail In The Practice* 51
8.1 Improvement in the quality of care of patients 52

CHAPTER 4: DISCUSSION 53

4.1 Incorporation of the internet into the health practice 55
4.2. Incorporation of e-mail in the health practice 57
4.3. Limitations 59

TABLE OF CONTENTS		PAGE
CHAPTER 5: CONCLUSION AND RECOMMENDATIONS		60
5.1	Conclusion	61
5.2	Recommendation	61
CHAPTER 6: DRAFT POLICY		64
	Web And E-Mail Communication Between The Health Professional And The Patient In The Health Practice	65
CHAPTER 7: REFERENCES		67

CHAPTER 1: INTRODUCTION & LITERATURE REVIEW

1.1 INTRODUCTION

Information today is viewed by some, both as an article of trade and as a catalyst for change.[1] The automated process has accelerated, and in some instances replaced human tasks in industry. Now information and communication technology (ICT) is viewed as a means to advance the way work is performed not necessarily substitute the human.[1]

After a decade of summits and meetings world leaders came together in 2000 with a sole aim of making development a reality. The United Nations launched the Millennium Development Goals (MDG) to be achieved by 2015.[2] At the MDG declaration, 189 countries were in attendance and in agreement that the goals had to be adopted. These goals are unique in that it was agreed upon by both developed and developing countries. There are eight goals which address social determinants of health including poverty and hunger, access to education, gender equality, with a direct focus on high risk populations such as women and children and chronic or infectious disease populations, inter alia. These goals focus both on the high risk populations in society and the environment within which these populations live. The availability of environmental resources for future populations is also a centre of attention. The last goal relating to the development of global partnerships, has as one of it's targets; to operate within the private sector to ensure that the benefits of new technologies are made available to the public, with a specific focus on information availability and communications within the public arena.[2] Equitable and universal access to health care information is a vital aspect of the worldwide strategies to decrease global disparities in health and to achieve the MDGs. An outflow of the latter was the adoption of a resolution at the 58th World Health Assembly (WHA) in 2005 on e-health calling on 192 World Health Organisation (WHO) member states to influence the use of e-health in a quest of the health-for-all vision.[3] A global data communication system that makes this possible is the World Wide Web (commonly abbreviated

as the "Web"). The web facilitates the convenient spread of information and operates via the internet. The latter consists of a collection of interconnected documents and resources.[4]

Therefore health information and health care professionals in Sub-Saharan African countries have a critical role to play in optimizing access to health information.[5] As recommended by the WHO, these countries should also investigate and implement internet-based health information (IBHI) in furthering the health-for-all concept in the region. For the successful application in developed or developing countries of IBHI, free access to IBHI, reliable and cost effective access to the internet and the necessary skills to identify and appraise relevant information is essential.[5] Developing countries often do not have the necessary capacity to meet all the criteria for the implementation of successful IBHI. The ideal would be for the developed countries to contribute to the necessary capacity building in developing countries to bridge the information divide. Access to this type of technology would result in access to information at the touch of a button[6] and access to reliable information could build the capacity of individuals. Internet use may be applied to research which could inform practice and it may also be used as a health promotion tool. Despite all the inherent mentioned advantages of IBHI, the fact that any person can download any information on the internet, may prove to be a serious limitation[6] as health care should be evidence based.

Currently there are no policies in place to control the quality of information in SA. The consumers of such information may not have the ability to judge the quality and value. The health care professional can therefore be seen as a vital connection in the series of providing evidence-based medicine through a system of web resources by screening the information before it reaches the public, training the public to be critical users of the information and helping the public to distinguish information that is used for promotion from factual information. The literature documents internet and e-mail use by health professionals in practice and indicates various factors influencing internet use, which will be discussed according to the conceptual framework derived for the purposes of the study (Figure 1).

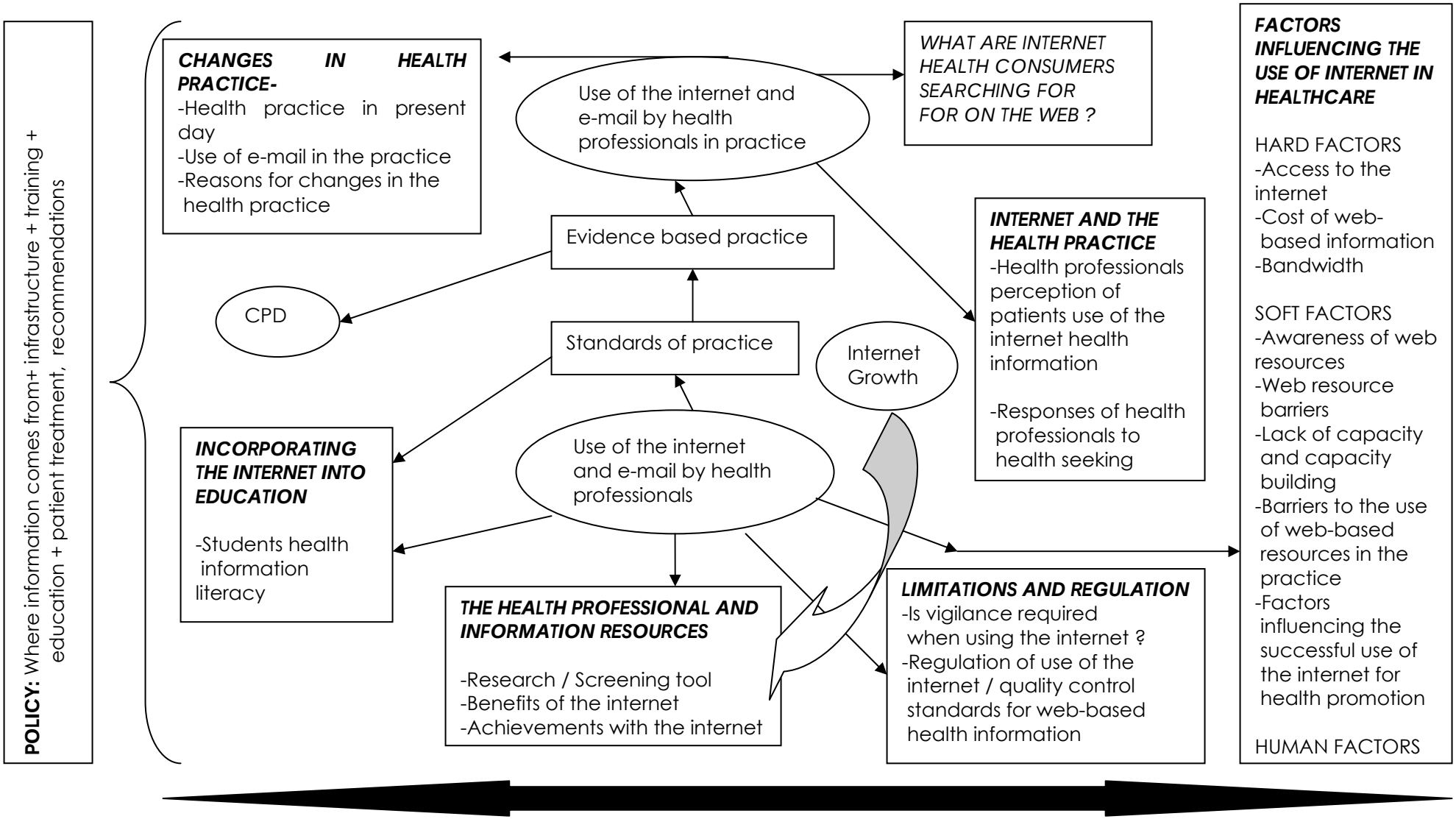

FIGURE 1: CONCEPTUAL FRAMEWORK OF LITERATURE REVIEW

1.2 INTERNET GROWTH

Over the past decade internet use has grown exponentially with Asia having the highest percentage of internet users (41.2%) globally.[7] Although Africa represents only 3.4 % of the internet users worldwide, it boasts the second highest, after the Middle East, internet usage growth in the world.[7] This is quite a phenomenal achievement and reflects the demand for the technology in the region in recent years. In spite of resource constraints, internet communication in Africa has increased over the past decade. In SA the increase in the use of the internet follows a similar trend as with the growth of the African region. The top three internet users in Africa in descending order are Egypt, Nigeria, and Morocco. SA is the fourth highest internet user in the African region.[7]

Looking at the number of people using the internet in isolation, would provide a warped idea of internet use. One actually needs to look at the population size and compare it to the percentage of the population that utilizes the internet. This is referred to as the internet population penetration.[7] It also provides a more realistic perspective of how the internet has been integrated into the population.

A clear distinction is then evident with the more developed regions i.e. North America, Oceania/Australia and Europe having the greatest population penetration of 74%, 60% and 50% respectively. Internet use in Europe was found to be the most frequent in northern countries, at a maximum of 62% in Denmark, while the southern countries of Europe reported the lowest internet health-related use with Portugal and Greece representing only 30% and 23 % of internet health user's respectively.[8]

In developing regions the picture is strikingly different. Even though Asia boasts the highest number of users and growth in the last decade it has a population penetration of only 17%. Africa is a geographic region with the second highest population but has the lowest internet penetration per population at a dismal 6%.[7] In 1998 Africa had a population of 700 million, yet

less than 100 million people had access to the internet and 80% of those who had access were in SA.[9] This reality impacts on the ability of health professionals to conduct their day to day responsibilities in relation to patient care and translates into how the internet is used in everyday life. This is the stark reality of the digital divide.

2 USE OF THE INTERNET BY HEALTH PROFESSIONALS

2.1 Standards of Practice and Evidence-Based Practice

In SA and other countries in the world, standards of practice clarify the responsibilities of the health professional. A health professional has a responsibility to maintain and update his or her professional competence. The interest of the public must always be promoted and protected and the best possible service must be provided to the community.[10] Evidence-based practice (EBP) is defined as quality assurance, devising and planning practice to suit the client's needs, communication with other professionals and the client, application of research in the practice and the continuous engagement in education to improve knowledge and skill.[11]

2.2 Continuous Professional Development (CPD)

By embracing EBP, a system of CPD was introduced more than 13 years ago to SA dietitians as a voluntary system and became compulsory 6 years later for all registered health professionals in SA.[12] CPD is recognised as a medium to access up to date scientific information, to improve capability and keep abreast of the changes in the healthcare environment. CPD activities in SA range from congress attendance, workshops, journal club attendance, reading, viewing or listening to online learning materials or media and in some cases by completing evaluation questions.[12,13] Some CPD opportunities for the health professionals are provided via the internet.[14] Casebeer *et al* reported that the chief importance of the internet for MDs was in the

area of professional development and information seeking.[14] One of the main uses of the internet in dietetic practice has been reported to be remaining up to date and improving nutrition knowledge with the aid of applied research on current best practice to inform patient care. The main benefit of internet based CPD reported by MDs is it's flexibility enabling health professionals to develop and manage their own self-directed learning with the utilization of different types of resources, at times which are most convenient to them.[15] MDs have reported that web-based CPD has additional benefits in that it allows the user also to set the pace of learning and allows for ideas to be presented in a format which is impossible to print on paper by the incorporation of multimedia components such as sound and movies.[13,16] The former is essential if the health professional is to remain up to date in the health practice.

2.2 The Health Professional and Information Resources

The steps of EBP i.e. formulating the question, searching for the answers, appraising the evidence, applying the results and assessing the outcome; has been simplified with the use of the internet.[17] General internists report that seeing patients in a practice setting generated twelve management questions per day.[18] The test for the health professional was then to access and locate the right information at the proper time to satisfy the questions arising from the practice.[19] No longer is the reliance on outdated textbooks necessary. "Open access" means free availability on the web, with permission to read, download, copy, redistribute and print.[20] Open access, has improved the availability of biomedical literature in the developing world,[21] this meant that peer-reviewed journals are available on the web and may be accessed from one's own home or clinical practice. However this is not always the case in Africa. Free full text availability of journal articles was in most cases nothing short of a myth as reported in a recent study by Smith *et al* 2007, where respondents complained that they could rarely access a free full text article.[22] The former was evident even when the site was described as one offering free initiatives.

Web-based information resources are now categorized into various databases. Depending on the database required i.e. Systems (comprehensive resources) e.g. Clinical evidence (www.clinicalevidence.com), Synopses (structured abstracts) e.g. Best Evidence (http://gateway.ovid.com), Synthesis (systematic reviews) e.g. Cochrane Database (www.update-software.com/Cochrane/) or peer reviewed studies (original research Articles), identified by searching Medline or Pubmed, has now become available at the click of a button.[17]

The internet and web have been reported to have a valuable impact on how health professionals access information. The former was also reported to have an influence on their clinical decision making. It has been said that the internet provides a platform for addressing healthcare quality and patient safety by assisting with patient management via the free flow of information. Health care professionals may then also download reliable information from reputable websites and save the patient and health professional a lot of time.[18,19]

2.4 Internet Used As A Research / Screening Tool In Private Practice

It has been reported that web-based technology has the health professional at the respondent level in research but also from a logistical and financial perspective. From the respondent perspective web-based technology has shown to be advantageous as a health data screening tool compared to face-to-face interviews. Computer based screening extracted more HIV-related factors in blood donors than did standard questionnaire interviewing methods (face–to-face interviews). Patients were also more liberal in disclosing high risk sexual encounters due to the anonymity of web-based data collection methods.[23]

The web-based format also facilitated data collection from multiple research sites and settings, thus resulting in greater representation.[24] Practically this means less time and expense wasted in travelling and training of fieldworkers, data entry was also reported to be less tedious and

human error minimized and a high retention to follow up was noted in the adolescent age group.[24] The internet thus has benefits for health research as well.

2.3 Benefits Of The Internet

It has been reported that from the health practitioner's perspective, the offering and maintenance of a consumer health website has become a practical and cost efficient mechanism for public health organizations to communicate health promotion information and programmes to the general public.[25] The internet has the benefit of reaching vast amounts of people with just one click at the minimum cost. The content can be updated instantly and inexpensively in comparison to the available alternatives e.g. paper, brochures, CD-roms and software applications.[25,26] and stored easily.[25]

2.4 Achievements With The Internet

The Canadian Health Network (CHN) came up with a novice idea for health promotion via the web. The mission was to promote healthy choices by communicating trustworthy information on health promotion, disease and injury via a network of non-governmental organizations.[27]

In short a game was developed, an online foot race between friends. Web-users had to register with the campaign first. The advertisement for CHN was within the game. As the game progressed the web-users were exposed to health quizzes and encouraged to pass along the game to a friend.[27]

So doing the health promotion messages were sent along from web-users to another via a friend. It resulted in more than 100 000 participants being registered for the game. Thus illustrating how the web and internet can be used for successful health promotion just by being creative and having a good knowledge of the target market and how it operates. This was

managed within a budget of $50 000 (Canadian).[27] This type of achievement with the internet was not restricted to developed countries.

Curioso *et al*, utilized the internet as a health promotional tool for people living with Human Immuno-deficiency Virus (HIV) in Peru, and suggested that there is great potential to improve health through the use of information and communication technologies.[28] In Uganda access to reliable web-based disease information was found to be informative and linked to positive behaviour change.[29] Wantland *et al* compared the effectiveness of web-based intervention vs. non-web based interventions with patients and its effect on behaviour change. The findings indicated that in 16 out of 17 studies an improved knowledge and/or improved behavioural outcome was found using web–based interventions.[23]

A Google search for 'health promotion' rendered 49 400 000 sites![30] The sites ranged from non-profit organizations, health promotion in the workplace, health promotion models, charters, mental health promotion and academic courses to mention but a few. Web traffic on the internet universe can also be complex and costly for consumers, especially in the cluttered health sector. Thus illustrating that amidst all achievements, using the web as a resource is not without a challenge.

3 FACTORS INFLUENCING THE USE OF THE INTERNET IN HEALTHCARE

This section describes the influences or barriers to internet use for the health professional and the patient in the health practice. It portrays that depending on where the health practice is situated in the world certain influences and barriers may be prevalent.

Health outcomes are affected by communication inequality. A divide that exists between those who have access to computers and the internet and can properly navigate these resources and those who do not and cannot,[31] is also referred to as the digital divide. It is then conceivable that the digital divide persists in communities in developed countries also.

Typically, this scenario is where people of lower socio-economic groups have less access and usage of technology, are less likely to be online at home. Lower socio-economic groups report the lack of time due to work or family responsibilities. This hinders internet and computer use and it is an environment where frequent family conflict regarding who would use the computer prevails compared to people in higher socio-economic groups.[31] The fore-mentioned factors will then have an influence on the access of the patient in the practice to the internet.

To describe the myriad of influences and or barriers to internet use per se and internet used as a tool, barriers or influences have been grouped as hard, soft, and human factors. Where the hard refers to more infrastructural issues, the soft relating more to health professionals attitudes to ICT and change in technology and the human focuses on people-related issues as a driving force to whether the internet or web is used or not.

3.1 Hard Factors: Impact On The Professional And Patient Use Of The Internet In The Health Practice

3.1.1 Access to the internet

ICT use and connectivity in Africa varies from country to country. Per capita income reflected major inequalities in ICT connectivity between upper, middle and low income countries.[1] In upper middle income countries there are more personal computers (PCs), telephone mainlines and internet subscriptions compared to low income countries. In African countries the internet connectivity is greatly dependant on the existence of telephone mainlines.[1] Access to a personal internet source in Africa is rare. Typically more communal areas of access predominate. Health professionals with personal access at an institution level also reported infrastructural problems relating to hardware, internet connections and computing facilities and power supply.[22] Internet cafes are, more frequent in Nigeria and Cameroon.[22] In the fore-mentioned countries the delight experienced with the availability of internet cafes has to be married with the noise and lack privacy. In the end the benefits of internet cafes outweigh the

lack of privacy as it offers affordable services where you only pay for the time spent.[32] Previous studies have reported that public access to the internet, might be a potential solution to the digital divide.[31] This gives an indication of the divide between the health practice in the developed and the developing world!

3.1.2 Cost of web-based information

Kirigia *et al*, reported that installation cost and telephone services are expensive and beyond the reach of the majority of the people in Africa.[1] This affects the number of computers available at work, but especially at home in Africa.[33] In economies where the private sector plays a significant role, the competition has brought down the price of PCs, telephone mainlines and cellular and internet subscriptions.[1] The connectivity cost per gross domestic product in Africa has escalated to almost 2000 times higher than in the United States (US) ! These costs are further escalated by telecommunication companies with the monopoly licenses on the sale of bandwidth. Juma *et al* & Moyer reported that that the connectivity costs, in Sub Saharan Africa are amongst the highest in the world and that Universities in Sub Saharan Africa pay approximately 50 times more for bandwidth than do similar universities in the US.[33] The latter provides an idea of the financial challenges faced by African Universities when incorporating Internet as part of undergraduate education. This provides an indication of the cost of undergraduate training for health professionals in the developing world

3.1.3 Bandwidth

Internet access in a developed country means that there is greater likelihood of access to broadband. Broadband in telecommunications means a greater information carrying capacity.[34] Broadband compared to a telephone modem improves the speed and the browsing experience and also means more time spent on the internet compared to the internet experience with a dial up modem.[34] The health professional in practice would benefit

from broadband because it would decrease the time spent on searching for information. This is provided that the health professional has acquired the necessary skill in medical information searches

Juma *et al* stated that Sub Saharan Africa is the most digitally isolated region in the world.[33] The bandwidth per capita is only 1% of the world average and 0.2% that in the US. Although there is not much evidence in professional practice, it has been reported that universities in Africa have bandwidth available which are much slower than universities in the US.[33,35] This not only results in the isolation of the academics but is also seen to be a serious impediment to both education and economic development. Additional time is therefore needed for downloading information and ultimately impacts on time spent on the internet and financial cost. This has the potential to influence the health information literacy of the health professional in the health practice.

3.2 Soft Factors: Health Professionals Attitudes To ICT And Change In Technology

3.2.1 Awareness of web resources

It has been reported that the awareness of health information professionals regarding web resources in Africa was more related to search engines than data bases. Google has been reported to be the most popular search engine used by 71% of health information professionals. Web resources which were designed to bridge the digital divide i.e. African Index Medicus (AIM), Health Internetwork Access to Research Initiative (HINARI), International Network for the Availability of Scientific Publications (INASP) health links to mention but a few are under-utilized.[5] In Africa the awareness of free access web resources amongst health professionals has been reported to be greatest for Pubmed and lowest for BioMedCentral.[22] The evident lack of awareness is only a partially contributing factor to the underutilization of web resources. Ajuwon *et al*, found that in Sub Saharan Africa it was quite the opposite, here only 45% of

health information professionals claimed they often used Medline or Pubmed.[5] If health information professionals are unaware of web resource data bases the information cannot be transferred to health professionals seeking that information. Thus there is no empowerment of the health professionals and no capacity building. Therefore web resource information use in the health practice in Africa is limited.

3.2.2 Web resource barriers

Under-utilization of web resources in Africa has mainly been attributed to limited software availability or use.[5] Health professionals report that the limiting factors when using data bases for publications like AIM and HINARI are that they are unable to access the full text article.[5,22] Thus it is apparent that for the health professional in a health practice in Africa, the practice of EBM is challenging. In addition health professionals also report a lack of relevance of the available information as well as a lack of time and incentives to use the information.[21] The literature also raises resources for web design and security issues as barriers to internet use in the health practice.[22]

3.2.3 Lack of capacity and capacity building

Lack of training in information seeking was reported as the most common barrier to utilizing the internet amongst MDs in the United Kingdom (UK). Even though some MDs were educated on search strategies, practice in information seeking was related to the improvement of searches. It was found that the lack of skill also impacted on the time spent searching for information. What was concerning was that if the information sought was not found, it was assumed to not exist. It is concluded that to be effective with literature searches health professionals must possess more than basic search skills.[36] Other studies have shown that the absence of hardware, internet access and the lack of technological skill impeded the utilization of CPD.[12,37] Training, practice and infrastructure alone would not guarantee access. Working in different

health sectors also poses its own limitations. Academics in specialist care were found to be better served with access to information than rural primary care health professionals. The latter also has implications on the practice of healthcare.[21]

When access to web-based resources is no longer a barrier, health workers in developing countries are often faced with other challenges like a lack of interpretation skills,[21] as well as language if the user is not literate in English, Chinese or Spanish as these are the top three languages used on the web.[7]

3.2.4 Barriers to the use of web-based resources in the practice

A barrier to the use of web-based resources in practice, in developing countries, but not unique to developing countries, is the lack of demand for information.[21] This may be due to a lack of a reading culture; long-term lack of access to information, resulting in a view that whatever is available is adequate, long term professional isolation, lack of awareness of evidence based health care and low motivation associated with poor working conditions and poor prospects for career development. Anecdotal evidence is suggestive that the lack of demand for information is also related to the poor quality of available information.[21]

In a hospital setting in Finland both physical and staff resources were the factors influencing the implementation of a successful internet-portal application.[38] In the physical environment the lack of suitable rooms, computers and internet connections were barriers. Regarding the staff, the lack of education regarding the technology, availability of staff and time were the limiting factors[38] Other barriers identified relate to financial and legal issues.[39] Thus in developing countries it was more the lack of awareness which influenced the barriers and in the developed countries occasionally a lack of willingness to incorporate the use of the internet into healthcare practice

3.3 Factors Influencing The Successful Use Of The Internet For Health Promotion

In order to successfully promote health via the web, Gosselin *et al* reported that there are 3 main challenges faced by those who communicate health messages via the web, these are cost, website familiarity and dissemination potential.[27] The cost of internet banners, pay-per-click search engines and e-mail marketing to promote and market a consumer health website is high.

3.3.1 Human factors

Internet users visit websites they are familiar with, offering the contents they seek. Users visit a website by typing in a keyword in a search engine (proactive action), clicking on a banner (spontaneous action) or requesting a friend's advice via electronic communication or word of mouth.[40] Thus making the challenge of health promotion for the health professional in practice even harder.

The final challenge to health promotion for the health practitioner on the web is dissemination potential. Dissemination within a web user's social network is prone to increase if the information being passed along is fascinating, humorous or useful in nature.[41,42] If one examines health promotion material it is more serious and factual in nature, thus has a low potential of being disseminated in the web user's social network.[27]

Phelps et al & Chui et al in their observations of web-users and the most frequently passed along e-mails have found that;

- Consumers are reluctant to delete a message from a person they know
- E-mail messages received from a close personal source have a greater chance of being forwarded and also have greater credibility

- Five most reported motives for passing along an e-mail was because it was fun, enjoyable, entertaining or because it could help others or promote having a good time
- Women are more likely than men to forward an e-mail
- Web-users who have access to broadband are more likely to forward an e-mail than those with a dial–up modem
- Any information that sparks strong emotion are more likely to be forwarded
- Web-users are irritated with unsolicited e-mails and delete it without opening

In summary it is evident from the literature that hard factors are the infrastructure related factors, soft factors epitomize the willingness or motivation to adapt to the changes in ICT. While soft and human factors are specific humane issues playing a key role in the use or abortion of ICT in the health practice. Human factors are those which health professionals have to bear in mind in terms of patient's response to e-mail, since it can have an influence on the success of a health promotion intervention in the health practice using e-mail and internet as a medium for the health promotion message delivery. All of the former factors ultimately impacts on the level of empowerment of the individual. This means careful consideration for the health professional in practice with incorporation of the internet. A health practitioner in practice with a dial up modem will weigh up the risk versus the benefit to professional as a practitioner and the patient. Having a dial up modem will increase the cost of running the practice. Access the internet will take longer and if used during a consultation might lead to unnecessary waiting for the patient. On the other hand it has the potential to access CPD articles and a better informed practitioner and patient. The literature provides the evidence that being in a developed country does not eliminate barriers to the use of the internet but rather that the internet user is faced with an array of challenges not unique to the developed world.

Africa is the most severely affected region in the developing world. The African region with its major infrastructural barriers also has an average low adult literacy rate (61%), low primary

(68%) and secondary schools (29%) and tertiary institution enrolment rates. This prevails in spite of numerous studies that have indicated that formal education can significantly affect the telecommunication usage.[1,21,33]

Seventy percent of postgraduate institutions in Africa are still reporting that textbooks[43,22] are the main source of health information. Thus there is no culture of internet use in information seeking. If this culture perpetuates at the postgraduate level the likelihood of it being incorporated in the health practice is slim.

4 INCORPORATING THE INTERNET INTO TERTIARY EDUCATION

4.1 Students Health Information Literacy

In a study conducted in two separate institutions in the US, 96% of the medical students agreed that technological skills were important in medical training.[44] Ivanitskaya *et al* reported in a study conducted among medical students of which the majority were final year medical students, that deficiencies were noted in the students ability to conduct advanced searches, ability to distinguish amongst different types of information, referencing other author's ideas and evaluating information from web pages and journal articles.[45] In spite of this fact the students held a very high view of their ability to conduct research. Thus even though students have access to the information on the web they might not be able to take full advantage due to poor health information literacy skills. This will then impact on their ability to locate the best available information[45] and for the health professional it will impact on evidence based practice as reported previously in the review.

5 CHANGES IN HEALTH PRACTICE- INCORPORATION OF THE INTERNET INTO THE PRACTICE

5.1 Health Practice Of Yester-Year

In health practices of yester-year treatment was not even an option but a form of gospel uttered by the health professional and the patients were the passive recipients. Traditionally health professionals were the main providers of information to patients regarding their diagnosis, prognosis and treatment options.[46]

5.2 Use Of E-Mail In The Health Practice

Recent research indicated that the type of medical training and the size of the practice were related to the use of internet and e-mail communication in the practice. Sixty-six percent of Canadian MDs use the internet as a tool to support treatment or direct patient care.[47] Family medicine doctors and surgical specialists were more likely to utilize e-mail in their practices, however there was no significant difference noted amongst MDs who practice in single or multi-specialty practices.[39]

In 2003 Patt *et al* indicated that despite the potential to improve both the efficiency and quality of health services, the use of e-mail communications was not widely adopted by many MDs[48]. Their concern with regard to using this form of communication was in relation to the time demands with e-mail communication, confidentiality issues and liability concerns to both the patient and the health professional.[46,49]

For patients and care givers, e-mail provides the opportunity for the patient to pose questions to the health professional and in so doing facilitates understanding of the health issue.[46] E-mail also reaches those in isolation. This applies to geographical isolation, but not exclusively so. The primary caregivers of those with Alzheimer's Disease do not have the liberty of coming and

going as they please, similarly this applies to mothers of small children and the physically disabled. E-mail thus has the potential to reduce loneliness and isolation.[25] E-mail has saved the web-user time and required less effort and did not have to be 'administered' in a different facility.[25,46]

5.3 Reasons For Changes In The Health Practice

Anderson *et al* 2006 reported that there are four main reasons for the change in patients from passive recipients to active consumers of health information; the first being advances in medicine[51]. This has led to unrealistic expectations on the part of the patients. Secondly, the highly specialized care offered by the health professionals; the patients perceive them as impersonal and aloof. Thirdly due to the high demand on medical care and consultation time constraints, patients are often left with a sense of frustration and dissatisfaction with the information provided. Lastly some health professionals may lag behind the patients in terms of familiarity with the use of information technology, patients became aware that there were limits in the MD's knowledge therefore may leave the consultation room thinking that they are better able to seek information about their health condition and treatment options and felt they had a responsibility to search for information.[46,52]

Patients are no longer satisfied with the 'old' approach to medical practice. Weinstein reported, 'patients do not want "*do it yourself" health care*, but they do want to understand the alternatives; they do want to be informed and they definitely want choices.'[53] Patients are willing to play an active role, disclosing health seeking behaviour to the health professionals.[46]

6 WHAT ARE INTERNET HEALTH CONSUMERS SEARCHING FOR ON THE WEB?

A poll conducted by Cyberdiolgue found that 70% of all patients would like their health professional to recommend a health care website for their condition.[1] Only 4% of patients received such information from their health professional.[49]

McMullan reported in 2006 that in surveys of cancer patients, the main reason why these patients use the internet for information, was that they were dissatisfied with the information provided to them by health professionals.[46] In New Zealand and America a patient survey revealed that when patients seek web-based health information, the main health topics searched for was in relation to a specific disease or condition, medication and the third most frequent search was with regard to nutrition and exercise.[6,54,55,56,47] Typical behaviour of patients was also reported in Europe where 52% of people logging on to the internet did so to read about health or illness and 46% used the internet to decided whether to see an MD.[8]

Research conducted amongst dietitians in the UK indicated that the top three reasons for dietitians using the internet at work were; work-related research, searching for nutritional information and searching for health information.[57] Ajuwon *et al* found that the most often accessed categories by professionals in Sub Saharan Africa in 2008 were research materials (71%), public health information (65%) and clinical information (50%)[5]. To date, there has been no data or published policy on electronic communication with patients in healthcare in SA.

6.1 Patient Benefits Of Seeking Internet Health Information

The patients obtaining internet information have the convenience of acquiring it in their own home and at a considerable lower cost[25,24] than a doctor's consultation. It is also anonymous and can provide a virtual support network of family and friends. Additionally information from the internet can improve the patients' knowledge of their medical condition and self-care and so reduce the frequency of unnecessary visits to the doctor. The internet also delivers the

information in timely fashion, when required and the user can tailor the information in accordance with their own needs.[25] A survey amongst American cancer patients in 2005 revealed that the internet information empowers them to make health decisions and assisted them in talking to their doctors.[46] In spite of the fore-mentioned benefits, 31% of patients in an American survey also found internet health information to be overwhelming, conflicting (76%) and confusing (27%).[46]

7 HEALTH PROFESSIONALS PERCEPTION OF PATIENTS USE OF INTERNET HEALTH INFORMATION

In New Zealand health professionals underestimated the proportion of their patients who had access to the internet; 63% of the health professionals thought that less than half of their patients had access to the internet whereas 65% of the patients reported access. Eighty–one percent of the health professionals thought that less than half of their patients used the internet for health information, whereas 74% of them did. Health professionals did however correctly identify nutrition and exercise amongst the top four health topics on which patients are most likely to conduct internet searches. The vast majority of the health professionals (88%) thought their patients only understood the information obtained some of the time.[56]

8 RESPONSES OF HEALTH PROFESSIONALS TO HEALTH SEEKING BEHAVIOUR OF PATIENTS

Schwartz *et al* found that among the patients surveyed from the waiting rooms of primary care offices who sought internet health information; 8% reported always discussing the information with the health care provider, 53% reported that they sometimes discussed the information, 29% reported never discussing it and 11% reported that they could not recall ever discussing it.[56] This is possibly a confirmation of Andreassen *et al*'s suggestions that web-based resources are used as a supplement to the typical health services as opposed to a replacement for the health professional.[8]

Health professionals generally respond in three ways to the electronic health seeking behaviour of their patients.[46] Health professionals will either feel that their medical authority is being threatened and respond defensively, exerting their expert opinion. They will then quickly and authoritatively steer the patient toward the MD's choice of action.[58]

An alternative scenario is where the relationship between the health professional and the patient is altered and becomes more patient-centred. This allows for collaboration around information and/or ideas between the patient and the health professional. This setting benefits the health professional since they do not have the time for tedious searches and benefits the patient, as the health professional has the skill and trained capacity to analyse the information and assess the relevance to the patient concerned.[46]

The third scenario is where the health professional recommends a website to the patient. So doing, the patient is guided to relevant, reliable and accurate information. It then becomes imperative for the health professional not only to know the information, but also where it can be found on the internet. Thus, also stressing the importance of education and training the patients on how to filter the information. For the patients to be guided it is quite obvious that the health professionals should be trained in aspects of information retrieval and how to determine the accuracy of informationl.[59]

Powell *et al* reports that the internet usually increased the quantity and ease of access to information, but the quality of information varied.[60] MDs in developed countries make claims that an alarming portion of medical information on the internet is false or misleading.[49] When dietitians were asked to rate the quality of the health information on the internet which patients had produced on visits, on a scale of 0-10 (where 0=poor and 10=excellent), the rating ranged between 0 and 9.5 with a mean rating of 3.7. Thus this random sample of dietitians in the UK, were not convinced that their patients had obtained credible nutritional advice from the

internet.[57] It has become vital for dietitians to be aware of the information available online, in order to assist patients in making appropriate decisions regarding nutrition and health.[57]

Numerous dietitians, around the world, advertise or provide nutritional advice via the internet. A Google search with the search terms: 'Dietitians and online advice and SA' yielded 22 800 sites! This of course is without any guarantee of reliability. The content of these sites varied from nutritional advice offered via e-mail; 'personalized/tailored' meal plans; 'Cyber–dieting' and a list of dietitians providing on-line dietetic advice (indicating the types of patients they target). As previously indicated, in healthcare the credibility of this information is of paramount importance.[30]

Ullrich *et al*, reported that when recommending a website, health professionals need to consider the quality of both the website and the content of the information provided.[49] The website should clearly separate the editorial content from the promotional material. This is essential since patients do not know how to distinguish unbiased information from information designed to sell a product or a service.

Therefore it is vital that consumers and providers of information should be educated on how to use the internet and how to recognize quality information, as this may help to reduce the spread of misinformation. When making health and nutrition–related decisions consumers of web-based resources would then be able to make an informed choice.

9 IS VIGILANCE REQUIRED WHEN USING THE INTERNET?

With the advent of the internet new avenues for CPD were created.[61,6] Scott *et al* found that the distribution of information via the internet is at a potentially lower cost than through the traditional media.[54] The content can also be quickly updated and immediately published on

the web.[6] Thus the vigilance of health professionals when using the internet may be as a direct relation to their knowledge of the fore-mentioned.

10 REGULATION OF USE OF THE INTERNET / QUALITY CONTROL STANDARDS FOR WEB-BASED HEALTH INFORMATION

In developed countries guidelines in relation to electronic communication between patients and health professionals are in existence. Guidelines or quality control standards are exercised in the US by various associations/ regulatory bodies namely the American Medical Association (AMA), Health on the Net Foundation Code of Conduct (HONcode) and the Internet Healthcare Coalition, amongst others. AMA has internet communication quality control standards which relate to communication guidelines, medico-legal and administrative guidelines and an ethics policy with regard to doctor and patient internet communication. HONcode is a code of conduct for medical and health web sites and focuses on one of the internet's main healthcare issues; the reliability and credibility of information.[62,63,64]

There is an absence of quality control standards in medical information websites relating to health and nutrition which is evident amongst various regulatory bodies in SA including the Association for Dietetics in South Africa (ADSA), the South African Medical Association (SAMA) and the Health Professions Council of South Africa (HPCSA). The HPCSA has ethics policies, but none that specifically refers to the use of the web-based health information with patients.[9]

The potential value of the internet and the web in informing the health practitioner on EBP on the one hand and serving as a health promotional/communication/research, screening tool, on the other, is invaluable. The value of the internet and web-based resources can only be realised In South Africa if they are supported by sound research related to their use. Currently research on the use of web-based resources, the internet and e-mail in health practice in South Africa is scant, if not non existent. In order for health professionals to apply evidence-based medicine to the use of web-based resources in health practices in South Africa, it becomes

imperative to conduct research on how the internet, e-mail and web-based resources are utilized in the health practice.

The absence of guidelines of internet use amongst health professionals in the health practice setting in SA mandates research on this very topic. The findings of this study will be used to inform and draft a policy on internet or e-mail communication between health professionals and their patients.

CHAPTER 2: METHODS

2.1 AIMS AND OBJECTIVES

To assess the use of the internet and e-mail amongst a sample of dietitians and MDs* in active clinical practice and draft a policy for the use of internet and e-mail amongst health professionals.

OBJECTIVES

1. To characterize e-mail use by dietitians and MDs regarding the
    i. Point of access
    ii. Incorporation into practice
    iii. Frequency of use
2. To characterize internet use other than e-mail use by dietitians and MDs
3. To characterize internet information quality control practices of the dietitians and MDs
4. To describe the perceptions of the dietitians and the MDs regarding the most important internet information quality control practices
5. To describe the opinion of the dietitians and the MDs on the need for undergraduate training in internet or e-mail use
6. To compare characteristics, perceptions and opinions about the internet and e-mail use between dietitians and MDs

2.2 STUDY DESIGN

A cross-sectional analytical study design was employed to characterize the dietitians and MDs use of the internet and e-mail in their practice.

* The ideal would be to investigate all the health professionals in South Africa to enable external validity of the findings of the study, but this was not practically possible within the time and financial constraints of a Masters programme. The investigator is a dietitian, which made this professional group the primary target population. It was decided to include MDs as the group most likely to be part of a multi-disciplinary team with dietitians to enable comparison as well as improve the possibility of extrapolation of findings to the broader health professional group.

2.3 STUDY POPULATION

The study population was selected from a group of registered MDs and dietitians in both the public and private sectors. At the time of sampling, 1600 dietitians and 62 612 MDs were registered with the HPCSA.

2.3.1 Selection Criteria

In order to be eligible for the study, all participants should have been a dietitian or MD by profession and had to be registered with the HPCSA. They had to be able to read, write and understand English, either male or female and they needed to have contactable e-mail addresses. The study excluded dietitians and MDs who had participated in the pilot study and community service† dietitians and MDs.

2.3.2 Sample Size

A statistician was consulted and the sample size was determined by estimating the success rate in a Bernoulli trial with a 95% confidence interval and 5% precision. To ensure representivity, the required sample size of dietitians was calculated as 374 and as 382 for doctors. As the response rate for postal questionnaires is known to be very low,[65] it was decided to do a census of all dietitians complying with the inclusion criteria and to sample 1500 doctors as a proportionate sample to enable statistical comparisons.

† This is the compulsory year of training & supervision for Allied Health professionals and Medical Practitioners that is implemented after successful completion of the undergraduate degree. It is mandatory in order to register with the HPCSA and practice as a health professional in South Africa

2.3.3 Sampling Procedure

Study participants were recruited throughout the nine provinces of SA. The sampling was multi-staged and proportional to enable the statistical comparisons between the groups, thus a smaller proportion of MDs were included in the sample.

2.3.3.1 Dietitian sample

As a poor response rate was expected, as many dietitians as possible were invited to participate in the web-based survey, but needed to comply with the inclusion criteria. The HPCSA database was not used to provide a list of all dietitians because it is only able to provide lists of registered members' postal addresses and not their e-mail addresses. Of the 1600 registered dietitians, 1300 were members of ADSA and 1200 had contactable e-mail addresses (ADSA sends electronic newsletters to their members on a weekly basis).

2.3.3.2 Medical doctors sample

A proportionate 1500 MDs with contactable e-mail addresses were randomly selected from a medical information company Medpages[‡] after stratification.

The sample of MDs was stratified in accordance with sub-specialities and geographic location. Medpages compiled a data base of the following sub-specialities; general practitioners, family physicians, psychiatrists, physicians, obstetricians and gynaecologists, surgeons and paediatricians. Geographical stratification ensured that sub-specialities were drawn from all the nine provinces in SA.

[‡] Medpages is a definitive source of healthcare contact information in SA. They provide services to individuals seeking health care services, health professionals, government departments and the pharmaceutical industry.

The number of MDs in each sub-speciality included in the sample was calculated in accordance with percentage distribution of these sub-specialities on the Medpages data base i.e. If Medpages had a 20% listing of psychiatrist 20% of 1500 was included in the sample (Table 2.1).

Table 2.1: Stratified sample of medical doctors per sub-speciality

SUB-SPECIALITY	NUMBER
General practitioners	1125
Family physicians	60
Psychiatrists	45
Physicians	60
Obstetricians & Gynaecologists	90
Surgeons	60
Paediatricians	60

The final sample was selected randomly from the stratified data base. All the MDs names were listed per sub-speciality of general practitioners, family physicians, psychiatrists, physicians, obstetricians and gynaecologists, surgeons and paediatricians. The Excel random number generator application was utilized to generate the required number per sub-speciality.

2.4 RESEARCH INSTRUMENT

The survey instrument was a self-administered questionnaire, based on a questionnaire used by Florida State University College of Medicine[39] (Addendum 1) on the use of Information Technology in Physician Practices and the principles of the Health on the Net Foundation Code of conduct (HONcode)[63] (Addendum 2). A publication by Kirk *et al*, regarding Dietitians and the internet; *Are dietitians embracing the new technology*, was also consulted.[57]

The self-administered questionnaire (Addendum 3) contained twenty questions including demographic information relating to gender, area of speciality and practice setting. Only two of the questions were open-ended, one relating to the influence of internet on the quality of care of the patients and the other; aspects of internet or e-mail use which were recommended by dietitians and MDs to be incorporated as part of undergraduate health science education. The open-ended questions did not have any limit to the amount of words with which the respondent could answer.

The remaining questions were closed categorical questions. With the aid of the questionnaire, dietitians and MDs were requested to characterize e-mail use relating to the point of access, it's incorporation into the practice and the frequency of use. The questionnaire also included questions to characterize internet use other than e-mail with the inclusion of questions relating to the reasons for use and whether or not a website was incorporated as part of the practice.
To characterize internet information quality control practices of the dietitians and the MDs, participants were provide with a list of indicators i.e. source and date of the information and also to indicate if the information utilized was from a peer-reviewed site, to mention but a few, which they checked for when assessing the credibility of the information obtained from a website.

To describe the perceptions of the dietitians and the MDs regarding the most important internet information quality control practices, the participants were requested to indicate from a list of items, which they considered to be the most important for quality control. These include, amongst others, the affiliation to an accredited association, unbiased view of the information and reputable links to other websites.

2.5 DATA COLLECTION

The data were collected by means of an electronic web-based survey but respondents could request that the questionnaires be posted as well. To improve the response rate, convenient on-site collections were added for the dietetic sample and reminders were sent out to the MD sample. Pilot studies were conducted on both the dietitians and the MDs in February and March of 2007. The questionnaire was piloted amongst dietitians in the Division of Human Nutrition at Stellenbosch University and a few private practicing dietitians and pilot questionnaires (eight MDs) were sent out via the Medpages database to ensure that the webpage was operative and set up correctly. Pilot studies were done in order to refine the instrument and test the face validity.

A cover letter (Addendum 4) was e-mailed to the sample and included a web address where the self-administered questionnaire could be located for completion. The cover letter also included the aim of the study, the estimated time required to complete the questionnaire, who the investigators were and what the data would be used for. Participants were informed that by completing the questionnaire they were agreeing to participate in the study.

The cover letter was e-mailed via the ADSA secretariat to all dietitians who had contactable e-mail addresses on the 11 July 2007. No reminder was sent out to the dietitians via e-mail due to cost implications, but an additional data collection opportunity was scheduled in the Western Cape. Dietitians attending the meeting were requested to complete the questionnaire if they had not already done so and returned the questionnaires on site or were later collected by the researcher. Medpages e-mailed the same cover letter to a stratified random sample of MDs on the 16 July 2007. A reminder was sent to the MDs by Medpages on the 7 August 2007.

Both dietitians and MDs were also given the option to request the questionnaire by post. A self-addressed reply envelope was included with these requests.

2.6 DATA ANALYSIS

The data were automatically pooled into a data file when the questionnaire was completed electronically via the website. This data file was then exported to an Excel spreadsheet for further analysis. When problems with the submission were reported; the excel spreadsheet was checked immediately. If duplicate submissions were picked up, the duplicates were deleted.

Questionnaires collected onsite as well as those which were received by mail were manually captured and added to the excel spreadsheet before the analysis commenced. Before analysis the data were cleaned. All questionnaires containing data were analyzed. These include both complete and incomplete questionnaires. As the results were anonymous incomplete questionnaires could not be followed up. This resulted in the sample size for the various variables not being the same for all questions.

Responses to open ended questions were grouped around central themes. The central themes were identified by perusing all the comments and determining the number of times (frequency) that a comment was repeated by different respondents to the same open ended question. The comments of the dietitians and the MDs were separated to determine the central themes for each profession respectively. Actual comments were then selected at random to represent each central theme.

All the data were analyzed using STATISTICA computer software. StatSoftInc. (2008) version 8. www.statsoft.com. The data were tested for normality using the Shapiro Wilk test. The Mann-Whitney test was used for the non-parametric comparisons of two groups. Descriptive statistics were used to determine means and standard deviations (SD), for the continuous variables (age; medical cover, years in current position; years since graduation and frequency of use of the internet and e-mail). Frequencies were calculated for the categorical variables. To determine the differences between groups for the responses to categorical variables, (use of

internet and e-mail), cross tabulations were constructed with the dietitians and MDs as a classification variable. Pearson's Chi Square statistic was used to test for significant differences between categorical variables. In the analysis of a continuous variable (age) versus nominal variables (use of the internet) the analysis of variance was used (ANOVA).

The open-ended questions were analyzed by grouping similar responses. Responses were categorized and the frequency of responses for each category was determined. A p-value of $\alpha < 0.05$ was considered statistically significant in all statistical analyses.

2.7 ETHICAL CONSIDERATIONS

2.7.1 Ethical Review Committee

The study was approved by the Committee for Human Research of the Faculty of Health Sciences, Stellenbosch University (Addendum 5).

2.7.2 Informed Consent

A participant information leaflet to inform prospective participants about the study was e-mailed to each participant. Those who agreed to participate completed the questionnaire on a voluntary basis and this was taken as an indication of their agreement to participate.

2.7.3 Patient Confidentiality

On submission, each questionnaire was allocated a unique code. This ensured that personal and practice information was held in the strictest confidence and this detail was indicated in the covering letter. Personal information (name and surname) was not a pre-requisite on the

questionnaires and for this reason the HPCSA registration number was also not requested as it was a means of identifying the participant.

2.7.4 Language

Considering that the study population was a group of professionals, the need for translation of questionnaires was assumed to be unnecessary. The researcher assumed that the sample of professionals were proficient in English.

CHAPTER 3: RESULTS

3.1 SAMPLE

A total of 176 health professionals (106 dietitians and 70 MDs) responded to the questionnaire. Seventy-eight dietitians completed the electronic survey, 28 questionnaires were collected after the ADSA meeting. Amongst the MDs 65 completed the electronic survey and 5 were either posted or faxed. The response rate was 9% and 5% for the dietitians and the MDs respectively and 28% and 18% for the representative sample requirements respectively.

3.2 SOCIO-DEMOGRAPHIC INFORMATION

The mean± (SD) age of the sample was 39.8± (12.1) years (Table 3.1) and they had spent an average of 9.1± (8.03) years in practice. There was a significant difference (p=0.000; Mann Whitney test) in the age of the dietitians at 32.6± (8.0) years compared to the MDs at 50.5± (8.9) years and this was further reflected in the dietitians having significantly fewer years in practice [5.6± (5.9)] and fewer years since graduation [8.8± (7.5)]. The majority of the respondents in this study population were White (82%) females (67%). The most common practice setting was a solo private practice (32%). Therapeutic nutrition (60%) and obstetrics and gynaecology (36%) were the predominant areas of practice for the dietitians and MDs respectively.

TABLE 3.1: Socio-demographic information of the Dietitians and Medical Doctors

	TOTAL		DIETITIAN		MEDICAL DOCTOR		P-VALUE
	n	**mean±SD**	**n**	**mean±SD**	**n**	**mean±SD**	
Age	174	39.8±12.1	104	32.6±8.0	70	50.5±8.9	0.000*
Years in practice	174	9.1± 8.0	104	5.6±5.9	70	14.4±7.8	0.000*
Years since graduation	172	14.9±11.0	103	8.8±7.5	69	24.0±8.8	0.000*
Gender	n	%	n	%	n	%	
Male	58	32.9	2	1.8	56	80.0	0.000**
Female	118	67.0	104	98.1	14	20.0	0.000**
Population group							
White	142	82.0	90	84.9	52	77.6	
Black	1	0.5	1	0.9	0	0.0	
Coloured	9	5.2	8	7.5	1	1.4	0.027**
Asian	19	10.9	6	5.6	13	19.4	
Other	2	1.1	1	0.9	1	1.49	
Area of practice							
Community health	39	22.1	24	22.6	15	21.4	
Therapeutic nutrition	64	36.3	64	60.3	0	0.0	
Food-service management	5	2.8	5	4.7	0	0.0	
Academia	6	3.4	4	3.7	2	2.8	0.000**
Research	8	4.5	6	5.6	2	2.8	
Internal medicine	12	6.8	2	1.8	10	14.2	
Paediatrics	17	9.6	1	0.9	16	22.8	
Obstetrics/ Gynaecology	25	14.2	0	0.0	25	35.7	
Description of practice setting							
Solo private practice	57	32.3	39	36.9	18	52.7	
Multi-Disciplinary	12	6.8	10	9.4	2	2.8	
Academic /university	18	10.2	9	8.4	9	12.8	
Community health centre	6	3.4	6	5.6	0	2.0	0.000**
State Hospital	22	12.5	16	15.0	6	8.5	
Private hospital	32	18.1	9	8.4	23	32.8	
Other	29	16.4	17	16.0	12	17.1	

* Mann-Whitney
**Pearson's Chi Square
n may vary due to missing values

3.3 CHARACTERISTICS OF E-MAIL/INTERNET USE BY DIETITIANS AND MEDICAL DOCTORS

3.3.1 Point of Access

The majority of health professionals reported having access to the internet at both of the following points i.e. either the practice or workplace and their home [dietitians (58%) and MDs (68%)]. There were no significant differences between the points of access to the internet, between the dietitians and the MDs. One percent of dietitians and MDs both reported having an additional access point to the internet other than either the practice or workplace and the home. Similarly for e-mail access, most health professionals reported having access to e-mail at both the practice or workplace and their home [56% of dietitians and 62% of MDs]. However with e-mail access 2% of dietitians and MDs respectively reported having an additional access point to e-mail other than either the practice or workplace and the home. No significant differences in e-mail access were found amongst the dietitians and the MDs.

3.3.2 Incorporation of E-Mail / Internet into the Health Practice

Just over half of the health professionals (55%) reported using e-mail/internet to communicate with patients in their practice. Significantly (p=0.000, Pearson's Chi-Square test) more dietitians (65%) than MDs (41%) reported this.

In order to characterize how e-mail was incorporated into the practice, participants were provided with a list of eight indicators (Table 3.2). It seems the most common reason for health professionals using e-mail was to request information from patients as reported by two thirds of the sample. About a third reported using e-mail to send appointment reminders, update personal information, inform patients of completion of requests and to provide test results. Fewer professionals reported using e-mail to renew prescriptions and inform patients about new products or services available. Significant differences were found between dietitians and the

MDs for five out of eight listed indicators where dietitians were more likely to use e-mail to remind patients of appointments, updating the patient's personal information, informing patients of the completion of a request and advertising a new product or service (Table 3.2). Most health professionals reported using e-mail because they found telephone calls to be more tedious.

TABLE 3.2 Indicators of how e-mail is incorporated into the practice of dietitians and medical doctors (n=176)

Indicator	Total	Dietitians		Medical Doctors		p-value§
	n	n	%	n	%	
Appointment reminder	93	56	44.6	37	18.9	0.008
Update personal information	93	57	47.3	37	16.2	0.001
Request information	99	62	75.8	37	59.4	0.089
Renew prescription	86	49	14.2	37	21.6	0.376
Inform patient of completion of request	92	56	62.5	36	33.3	0.005
Save time on phone call	100	63	73.0	37	48.6	0.014
New products or services availability	95	59	49.1	36	5.5	0.000
Test results	93	54	38.8	39	43.5	0.649

§ Pearson Chi-Square test
n* may vary due to missing values

In order to determine if any additional functions were incorporated as part of e-mail communication in the practice, respondents were given a list of eight guidelines (Table 3.3) with 2 related to safety issues and 6 related to e-mail etiquette. The majority of health professionals (70%) reported that they incorporated safety issues into their e-mail communication. No statistical difference was found for this guideline between the groups. Statistical significance was found in only 2 of the guidelines incorporated as part of e-mail communication with patients and both of these items related to e-mail etiquette. Significantly more dietitians (56%;n=45) than MDs (30%;n=27) encouraged patients with lengthy e-mail messages to schedule an appointment in the practice rooms (p=0.030, Chi Squared). Dietitians

were significantly more likely to inform their patients, that e-mail cannot replace a face to face consultation (p=0.01 Chi Squared). A greater percentage of MDs informed their patients of privacy issues (74%;n=27) and security risks (33%;n=27) compared to dietitians [(70%;n=46) and (23%;n=43)] respectively, even though there was no statistical significance found.

TABLE 3.3: Guidelines incorporated by dietitians and medical doctors as part of e-mail communication with patients

Guideline	Dietitians		Medical Doctors		p-value§
	n	%	n	%	
Etiquette					
E-mail hard copy placed in file	52	63.4	27	55.5	0.496
Turnaround time for messages	44	18.1	28	10.7	0.381
Automatic reply	45	20.0	28	17.8	0.820
Need for concise messages	44	9.0	27	3.7	0.368
Lengthy message; patients told schedule an appointment	45	55.5	27	29.6	0.030
Cannot replace one-to-one consultation	49	69.3	27	40.7	0.015
Safety					
Informed of privacy issues†	46	69.5	27	74.0	0.679
Informed of security risks†	43	23.2	27	33.3	0.359

§ Pearson Chi-Square test
n may vary due to missing values

3.3.3 Frequency of use

Dietitians reported accessing the internet 3.7± (6.2) and e-mail 5.1± (8.3) times a day, which was significantly more than the MDs who reported having accessed the internet 1.1± (3.1) and e-mail 1.5± (3.6) daily (p=0.001 for internet and p=0.000 for e-mail; Mann Whitney test). For those professionals without access to the internet or e-mail in their practice, significantly more dietitians (70%;n=47) compared to MDs (46%;n=52) indicated that they would like to communicate with patients via e-mail in the future (p=0.001;Pearson Chi-Square test).

4 CHARACTERIZATION OF INTERNET USE OTHER THAN E-MAIL

i.e. WEBSITE AVAILABILITY IN THE HEALTH PRACTICE

Just over a third of health professionals (35%) had a website link available to their patients for marketing purposes. Websites were significantly more available for dietitians' practices (17%;n=19) as compared to MDs (16%;n=12) (p=0.037; Chi-Squared test), but there was no significant difference found regarding why they had incorporated a website for their practice (Table 3.4).

Even though no significant difference was found, a marked difference in response was noted when the internet was used for research. None of the MDs reported using the internet for research purposes, whereas a fifth of dietitians (21%;n=19) reported using the internet for research purposes. A greater percentage of dietitians used the internet for marketing (37%;n=19) and research (21%; n=19). While MDs used the internet for marketing (33%;n=12) and to gain access to their e-mail (33%;n=12).

TABLE 3.4 Reasons Why Dietitians And Medical Doctors Incorporated A Website As Part Of Their Health Practice

	Dietitians n=19		Medical Doctors n=12		p-value§
Reason	n*	%	n*	%	
Marketing purpose	7	36.84	4	33.33	0.205
Health promotional tool	2	10.53	1	8.33	
Access to e-mail	2	10.53	4	33.33	
Research purposes	4	21.05	0	0.00	
Other	4	21.05	3	25.0	

§ Pearson Chi-Square test
*n may vary due to missing data

Table 3.4 reflects those who responded yes to having a website

4.1 Reasons Why Dietitians And Medical Doctors Excluded A Website From Their Practice

Those health professionals that did not have a website, cited various reasons (Table 3.5),including there being no infrastructure, to never having considered it. The reasons why dietitians and MDs did not have a website as part of their practice varied significantly (p= 0.00 Chi Square test). Maintenance costs were the most popular (50%) reason reported amongst the dietitians, while the MDs indicated other reasons (un-resourced provincial hospital, consulting room space does not allow) and the time spent, as their main reasons for not having a website.

TABLE 3.5 Reasons why dietitians and medical doctors did not have a website as part of their health practice

	Dietitians n=44		Medical Doctors n=36		p-value§
Reason	n*	%	n*	%	
Maintenance cost	22	50.00	2	5.56	
Time consuming	6	13.64	14	38.89	0.000
Update maintenance	1	2.27	4	11.11	
Other	15	34.09	16	44.44	

§ Pearson Chi-Square test
*n may vary due to missing data

Table 3.5 reflects those who responded no to having a website

4.2 Reasons Why The Internet Was Utilized

Respondents were requested to indicate whether they used the internet for (a list of 8 tasks was given) health information searches, nutritional information searches, research-work related, research personal, shopping, entertainment, travel and other. Health information searches, was the most frequently selected reason, amongst the health professionals for utilizing the

internet 96% and 94% amongst dietitians and MDs respectively. No significant differences were found between the responses of the dietitians and the MDs except for nutritional information searches and shopping. Significantly more dietitians (100%; n=98) compared to MDs (48%; n=31) used the internet for nutritional information searches (p=0.000; Chi square). However significantly more MDs (51%; n=32) compared to dietitians (30%; n=24) used the internet to shop.

5 CHARACTERISTICS OF INTERNET INFORMATION QUALITY CONTROL PRACTICES BY DIETITIANS AND MEDICAL DOCTORS

Significantly more MDs (60%;n=40) compared to dietitians (44%;n=43) reported referring patients to the internet (p=0.052; Chi Square test).

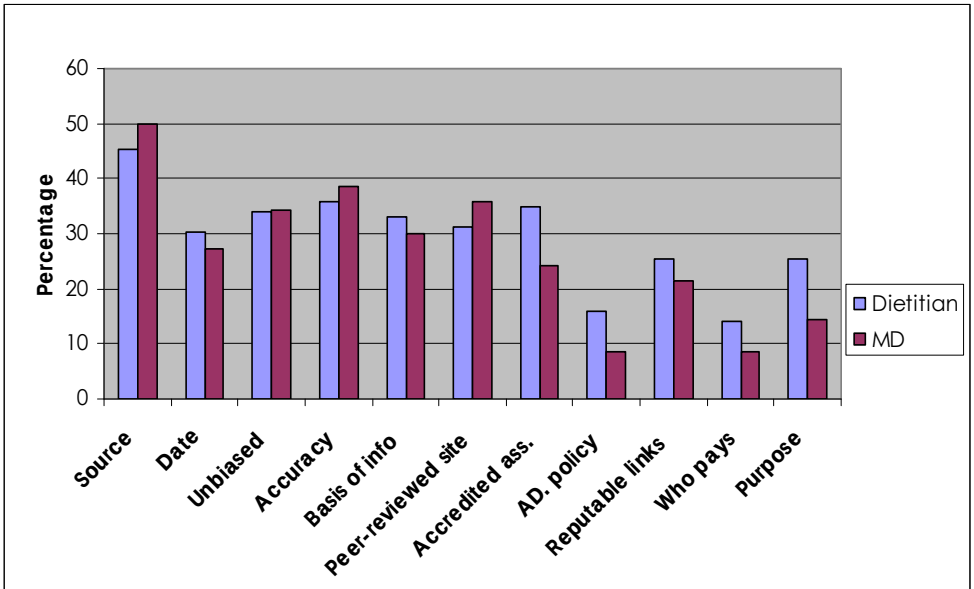

Figure 3.1: Items which are checked by Dietitians and Medical Doctors before referring Patients to the internet

To indicate the practices (how they assess quality as per checklist) of dietitians and MDs when using web resources, dietitians and MDs were given a list of 11 items (Figure 3.1). The items on

the x-axis refer to the information found on the web i.e. source of the information; the date that the information was last updated; whether the information is presented in an unbiased manner; whether the information is found to be true and correct (accuracy); the origin of the information (basis of info); information found had been peer-reviewed; accredited by an association (accredited ass); ad policy refers to the advertising policy of the website the information was found on. Reputable links refers to the reliability of the links to other websites found on the website where the information was retrieved; who pays for the maintenance of the website where the information was drawn from and lastly what was the general purpose of the website the information was found on - was it factual or for marketing.

Dietitians and MDs were requested to indicate which of the item(s) were actually checked before they referred a patient from their practice to the same website. The graph indicates that the source of the information was the primary item check that was done by both the dietitians and MDs (Figure 3.1). Accuracy of the information was the second most common item checked amongst both the dietitians and the MDs and accreditation with an accredited association was the third most repeatedly checked item amongst the dietitians. The MDs third most frequently checked item was that the information sourced from a website had to be peer reviewed. Who pays for the website was the least frequently checked item amongst the dietitians, while the advertising policy of the website the information was retrieved from and who pays for the website was the least frequently checked item amongst the MDs.

6 PERCEPTIONS OF DIETITIANS AND MDS REGARDING THE MOST IMPORTANT INTERNET INFORMATION QUALITY CONTROL PRACTICES

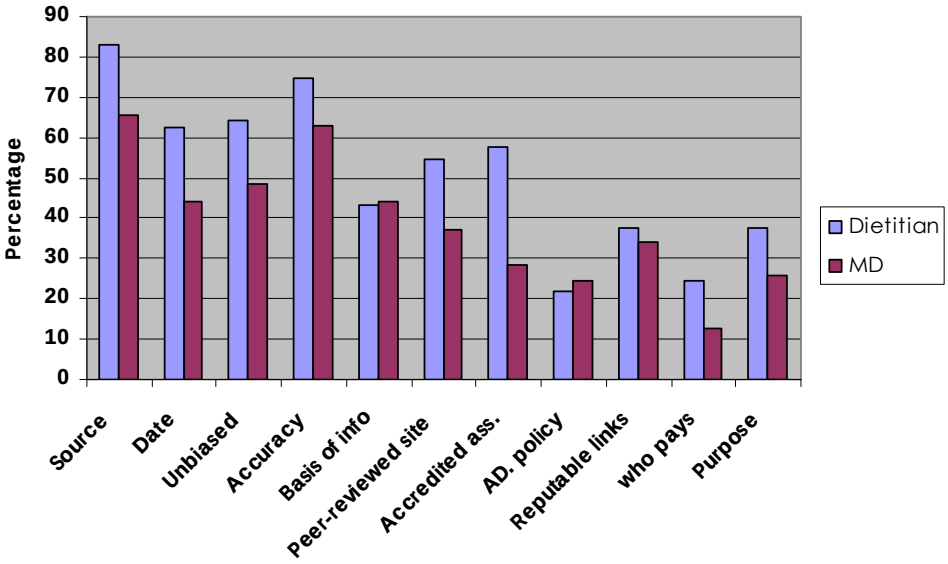

Figure 3.2: Items considered most important by Dietitians and MD's to check when using internet information resources

To determine their perceptions regarding the importance of these quality checks (rather than practically doing it), dietitians and MDs were given the same list of 11 items mentioned previously. They were then requested to indicate which of the items they considered to be the most important to check when obtaining information from the internet. Both groups agreed that the source of the information was the most important quality check item. Accuracy and an unbiased view of the information obtained were perceived as the second and third most important to check amongst the dietitians and MDs respectively. The advertising policy on the website the information was sourced from was perceived to be the least most important internet quality check item amongst the dietitians. Who pays for the website the information was retrieved from was considered by the MDs to be least important amongst the items to check. The date of the information was the fourth most popular item selected in terms of importance. Whether or not the information was peer–reviewed reached a surprisingly low 6th

position amongst the dietitians and 5th in terms of importance amongst the MDs. Peer review was considered less important than affiliation to and accredited association amongst the dietitians.

7 OPINION OF DIETITIANS AND MDS ON THE NEED TO INCORPORATE TRAINING ON THE USE OF THE INTERNET AS PART OF UNDERGRADUATE HEALTH SCIENCE EDUCATION

Less than a third of the health professionals (32%) received undergraduate education in IT. Significantly more dietitians (32%;n=99) compared to MDs (6%;n=69) responded that they had received education on the use of the internet in healthcare (p=0.00 Chi Square).

Medical doctors requested that training include information on all aspects of internet and/or e-mail use, while the dietitians expressed a need for more specific detail relating to e-mail etiquette in general.

When asked the question on which topics health professionals thought should be included as part of the undergraduate health science curriculum, the responses of the participants were indicated in terms of needs for undergraduate education but to a greater extent reflected their own self-identified needs.

Dietitian's (60%) and MDs (53%) firstly wanted to know how to source information and determine the reliability or accuracy of the information obtained. Followed by how to incorporate the information obtained into the practice. This included website creation and design, information management, quality checks before referring a patient to a website and the e-mail billing systems, which were all practice related identified needs amongst both the dietitians and the MDs.

Actual comments of health professionals listed below(table.3.6) were determined by grouping central themes. Actual comments were then selected at random to represent each central theme.

Actual comments of health professionals included that dietitians wanted information future nutrition workshops, continuous education opportunities, video clips on procedures, case studies and information relating to nutrition supplementation. MDs wanted students to have access to journals and webCT. Table 3.6 below reflects the actual comments of dietitians and MDs regarding their self-identified needs and what they thought should be incorporated into undergraduate health science education.

TABLE 3.6[§] : **Actual comments of dietitians and MDs regarding their needs relating to internet and e-mail use**

Medical Doctors	Dietitians
-how and where to find reliable info -How to use the internet for research purposes What to look at to ensure that information is reliable -Ability to sift out relevant info/research from irrelevant ones.	-how and where to find reliable info -NB to know how to access scientific updates efficiently on internet -Internet work literally gives me a pain in the neck
-..Electronic recordkeeping, scripting, reporting, book keeping, claims submission and communication between doctors, labs, pharmacy etc…	-how to determine if a site is dependable to give accurate information
-All aspects as this is now an integral part of the learning process.	-Email: setting boundaries on incoming patient/client queries: what questions will be answered via email; how much time spent by dietitian on replies; billing.
-…… communication with different health care units -Ethical aspects ….	-Email: I think that a course in how to professionally structure an email would be beneficial. Emails re becoming like sms and people don't seem to use proper English anymore! As a young dietician I always struggle to compose an email to a superior colleague and find myself reading over the email so many times before finally sending it, simply to ensure that I have come across in a professional manner!
-Students should be given access to library sites to get CMEs and journals. -Figuring out WebCT - I can't figure it out!	-..Use the internet to get CPD points and I think students should be shown how to do this … -emails sent on new workshops/seminars etc.

[§] Comments have been added from respondents without any alterations

8 COMPARISON OF CHARACTERISTICS, PERCEPTIONS AND OPINIONS OF DIETITIANS AND MDS REGARDING THE USE OF THE INTERNET/E-MAIL IN THE PRACTICE

Dietitians and MDs were asked whether they thought having internet or e-mail in their practice improved the quality of care of their patients and if so, how this occurred. The majority of MDs (69%) and dietitians (82%) reported that in their opinion, the internet did improve the quality of care of their patients but there were no significant differences found between the two groups. With regard to e-mail however, significantly more dietitians (81%;n=58) compared to MDs (58%;n=36) reported that having e-mail in the practice had an improvement on the quality of care of their patients (p=0.017 Chi Square test). Below are a few of the actual comments of how e-mail was reported to have improved the quality of care of their patients…

'I can access product information via the internet during patient consultations which is prompt and enables accurate assessments. Email provides a convenient and cost effective means of keeping in touch with clients and offers them a line of communication with me at all times.'-Dietitian

'Communication is more convenient. Accounts and statistics are easier to manage. I give patients website addresses for them to further educate themselves.' -Dietitian

'time-saving, can communicate a message immediately - no delays as per telephone, esp. useful because not bound to office hours and patients can collect their message at their convenience'.' -Dietitian

'Patients e-mail their elaborate issues and I can look at it at leisure rather than in a rushed environment and respond appropriately.' -MD

'Patients sometimes only remember that they wanted to ask something after leaving the practice...e-mail leaves them with the opportunity to catch up on this'... -MD

'Access to internet allows easy access to information that help with patient care' -MD

'Patients can look up their disease on the internet and be better informed'-MD

8.1 Improvement In The Quality Of Care Of Patients

The reported reasons for the improvement in the quality of care of patients did not differ remarkably amongst the health professionals.

For the dietitians and the MDs the most frequent response was the convenience of internet and or e-mail use. The convenience related to the cost for the patient, the time spent with the patient, the ability to screen patients before their arrival and last, but not least, the ease of giving and receiving information from the patient.

'Finger tip access' to information was reported by both the dietitians and the MDs to be another advantage. Quite a few dietitians utilized the internet or e-mail to refer their patient to support groups or to set up a group consultation amongst patient with the same disease condition. Dietitians and MDs responded that as professionals, they and their patients were now better informed about their disease condition. Incorporation of e-mail and the internet also improved the administration of the practice i.e. obtaining laboratory results, handling account queries and general queries, corresponding with patients who either have or are relocating. MDs also reported that they found e-mail to be simpler than telephonic conversation. .

CHAPTER 4: DISCUSSION

This is the first study investigating the incorporation of the internet into clinical practice by South African health professionals and can contribute to the development of a draft policy in this regard. This policy would benefit health professionals and patients alike and be of use in health care practice. The results cannot be generalized for all dietitians and MDs due to the small size of the sample and the poor response rate from both groups. The sample of dietitians in this study typifies internet users in developed countries i.e. young, white, learned females from a higher social class and is comparable to internet users amongst of previous studies.[54-56,66-68] The MD sample was smaller and consisted of mostly male respondents (80%), which is in line with other MD samples of internet users.[22,56] This was quite interesting in that similar responses from MDs regarding internet use in the practice were found in terms of the male gender. With the MDs males were previously reported as being the smaller sample using the internet in the practice in developed countries and the larger sample of MDs in Africa using the internet in the health practice.[22,56] The larger male sample of MDs were repeated in this study population. This could suggest that more male MDs are inclined to incorporate internet as part of the practice or rather more inclined to participate in research on their practice setting.

Even though significantly more dietitians in this study population compared to MDs had received undergraduate education on the use of the internet. Sixty percent of health professionals in this sample had not received any training in this regard. This was similar to the finding of Ajuwon *et al* who reported that 70% of health professionals in Sub Saharan Africa received no formal training regarding internet use.[5] The significant difference in training of the health professionals in this study population can be explained by the difference in the ages of the two populations.

Just more than half of the health professionals in this study population had access to the internet and e-mail at work and at home. Internet access reported by the dietitians in this study population is greater than the 43% reported by Kirk *et al* in the UK (8 years ago) but less than the 72% reported by Podichetty[69] *et al* in the US. The increase in access in SA is not an

achievement of note, if one considers that internet usage in SA has grown by 91% over the same time period.[7]

The dietitians reported using/accessing the internet and their e-mail more frequently (daily) than the MDs (every 2nd day). Reasons are not clear, that the differences between the dietitians and MDs are to do with age and gender rather than with profession alone. It is speculated that as the dietitians reported more comprehensive IT training at undergraduate level and were generally younger, they were more comfortable utilising the technology. This has been alluded to in the literature in that those with more self-confidence[70] used the internet more frequently but the evidence is conflicting when one looks at the effect of age on internet use.[70,71]

4.1 INCORPORATION OF INTERNET IN THE HEALTH PRACTICE

A significant reluctance on the part of the MDs to incorporate a website as part of their practice was noted, with some MDs reporting not ever having considered having a website. Dietitians (17%) had a website available to their patients and even reported conducting internet searches during consultations, whereas other studies have reported that this may not be practical due to the time required for effective searches.[36] Dietitians that did not have a practice website, cited maintenance costs as the most common reason. It is therefore speculated that the comments of the dietitians indicate that some investigation has already been done regarding establishing a website and reflects a better comprehension of the internet and how it operates.

It seems that dietitians are mostly using the internet for research and marketing purposes whereas MDs are utilising it for marketing and access to their e-mail. There was a significant finding that more dietitians were doing nutritional information searches as compared to MDs but this is expected since nutrition is the core business of the dietitian. Other studies have found

that information on rare diseases is the principal type of information sought on the web by MDs, information given to patients is often the second most important and thirdly information on common diseases and diagnosis.[66]

Contradictory to what was expected, with the above results in mind, MDs were found to more readily refer patients to the internet compared to dietitians. This seems to be in line with practices found with MDs in other parts of the world.[66,69]. Davies has reported that the number of questions asked by patients of MDs range between 0.16-1.27 questions per patient.[36] This suggests that the MDs are frequently inundated with queries from patients, but warrants further investigation. Furthermore, there has been a change in the type of patient coming to the health professional, with studies reporting more and more web-informed patients.[46,69]

It is clear that both the dietitians and the MDs felt that quality checks on websites were important, specifically regarding the source, accuracy and whether or not the information was peer reviewed or accredited with a credible association, which is supported by the literature.[57,69] This also echoes the quality assurance aspects of the standards of practice of the health professional.[10] An aspect that should be important, but were seen as less so by this population included, checking the date of the site. This has the potential to result in a patient-health professional communication, which refers to outdated information and ultimately leads to misinformation.

Dietitians and MDs in this study population are clearly uninformed that the source of the information; date of the information; bias checks in relation to the information; information accuracy; basis of the information; information peer review; accreditation by a credible association; advertising policy of the site the information is obtained; reputable links on the site the information is acquired; who pays for the site that the information is acquired from and lastly purpose of the site that the information is acquired from are all indicators that need checking before a patient is referred to a website. The fore-mentioned indicators make it

possible for the health professional to distinguish a reliable website from a fickle one and all the indicators should be checked as a matter of priority before and not after the patient visits the website to conduct a search. These indicator checks are in line with the core ethical values and standards for good practice for both the dietitians and the MD in ensuring the best interest and well-being of the patients.[10,11] Health professionals in this study, especially dietitians, considered the source, accuracy and an unbiased view of the information to be most important to check when obtaining information from the internet. Swartz *et al* reported that patients using the internet will verify the website by first discussing it with a healthcare provider, comparing the information with information found on other sites or searching for an endorsement on the site by a government agency or judge the authors reliability.[56]

Health professionals perceived the addition of the internet in health practice to have an overall beneficial effect on the quality of care of their patients. The MDs perception of the improvement in the quality of care of the patients is mirrored in the actual comments of the MDs. Primary responses of the MDs in relation to the quality of care of their patients indicate that the access to information via the internet was found to be worthwhile.

4.2 INCORPORATION OF E-MAIL IN THE HEALTH PRACTICE

The results indicate that e-mail was incorporated into health practice in numerous ways by health professionals. Significant differences between the dietitians and the MDs were found with the incorporation of e-mail into the practice. E-mail incorporation was largely related to the administrative aspects of the practice. In all, instances a greater percentage of the dietitians were more often incorporating these services compared to MDs. E-mail interactions addressed the continuity of care in the practice. Examining the age of the MDs one could deduce that e-mail was an additional skill that had to be learned, long after graduation and setting up of the health practice. This might explain the less frequent use of the e-mail in the practice of the MDs.

Vast differences between the dietitians and the MDs when using e-mail to inform patients of new products or services suggests that the dietitians are learning that e-mail can be used for more than just giving and receiving of health information, it appears that it is used for the marketing the practice as well.

Worth noting is that, even though no significant differences were found, more MDs than dietitians focused on safety issues. The researcher perceives that this might signal a lack of knowledge amongst dietitians regarding how safety measures can be incorporated as part of e-mail communication with patients in the practice.

Dietitians (81%) and MDs(58%) both report that having e-mail in the practice improves the quality of care of their patients, but dietitians significantly more so. The dietitians in this study population found an improvement in the quality of care of the patients, because of the improved covenience of communication between the patient and the dietitian. The MDs response was mainly related to the administration of the practice. The fact that significantly ($p=0.014$) more dietitians than MDs without e-mail in their practice, indicated a willingness to communicate with patients via e-mail in the future came as no surprise.

When dietitians and MDs were asked what aspects of internet and e-mail they thought should be included in undergraduate education their response was largely in terms of their own self identified needs.

Health professionals were willing to use the internet and e-mail in their practice. Health professionals in this study appeared frustrated due to time spent on the web with no success. This is in line with previous study were 60% of MDs found that time and lack of training was a barrier to searching for information.[36,72] It is apparent that dietitians and MDs do not have the required IT skill to source information.

4.3 LIMITATIONS

Even after repeated attempts to improve the response rate, the response rate remained low, thus the results cannot be generalized. To ensure anonymity, telephonic reminders were not explored as an option. Additional e-mail reminders may be considered in future studies; however financial constraints prevented this in this study. This strategy may not have helped though as suggested by the lower response rate of the MDs compared to the dietitians (9%), even though a reminder was sent out to the MDs and none to the dietitians. The poor response may therefore rather reflect previous findings that internet user's are unlikely to respond to unsolicited e-mails.[41,42] The potential of bias is recognized in that only the opinions of the dietitians and MD's using the internet was sought.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5 CONCLUSION

Barriers to access to information prevail on either side of the digital divide.[5,22,25,31] South Africa is plagued by some if not all of these barriers. In addition, health practice in South Africa is challenged by the absence of guidelines and policy in relation to IT communication and the use of web resources between the health professional and the patient in health practice. This study provides the impetus for research, on online communication between the health professional and the patient in general and highlights the need for the establishment of quality control standards for web resources in SA.

The research has indicated that there is a lack of knowledge and training regarding IT amongst this sample. This study alludes to the potential dangers which may exist for the patient and the health professional when there is no standardization in terms of IT use. However it warrants further investigation with a bigger sample size. This research calls for a policy. The need for a policy is warranted by the reported lack of clarity of health professionals, evident lack of guidelines and standardization as well as quality control practices in relation to IT communication in the health practice which cannot be overlooked. A policy document has been drafted to address this need. The challenge now is to ensure that the time interval between additional research, policy finalization and policy implementation is kept to a minimum.[73]

5.2 RECOMMENDATIONS

Training on internet and e-mail use should be incorporated at an undergraduate level to ensure that the future health professionals are familiar with medical information technology to sustain standards of practice and continue to practice EBM. The HPCSA CPD committee should investigate means of incorporating IT skills training for health professionals to ensure that the information needs of health professionals within the practice are met. If accomplished the

practice of life-long learning within the health practice will be simplified and convenient. It will ensure the smooth running of the practice, empowerment of the professional and spare the environment via less printing of complete journal articles but rather only the required material. A summary of the recommendations are provided in Table 6.1.

Additional studies are warranted and should include representative samples of all health disciplines in order to ensure a better understanding of internet and e-mail use amongst health professionals. Prospective studies should also have quality control aspects of web resources as a focal point to ensure the establishment of guidelines in South Africa. Future studies should focus on overcoming barriers specific to the SA context. The aspects reported by Phelps *et a*l & Chiu *et a*l regarding responses to e-mails must be taken into account with future studies.[41,42]

The HPCSA should include guidelines on the use of the internet and e-mail use and communication with patients in the practice. National health departments should make a concerted effort to make available information technology along with the necessary infrastructure. This should be available to the patient and the health professional as it has the potential to result in the better quality treatment for the patients and translate into a lesser burden on the health system.

Table 6.1 RECOMMENDATIONS FOR IT COMMUNICATION IN HEALTH CARE

	Target & Responsibility
1. Tertiary institutions should incorporate training in IT at an undergraduate level IT training should include health information literacy skills Training must be mandatory and accredited Approved by the HPCSA	Health Sciences faculties
2. Devise guidelines on IT communication between the health professional and the patient Must be evidence-based Applicable to the South African context Include a system for payment for the health professional Include course components for the tertiary institution	HPCSA
Devise standards for quality control regarding web resources	HPCSA and health professional associations
4. IT communication policy to be expanded to include IT communication in health	National Government

CHAPTER 6 : DRAFT POLICY

DRAFT POLICY-

WEB AND E-MAIL COMMUNICATION BETWEEN THE HEALTH PROFESSIONAL AND THE PATIENT IN THE HEALTH PRACTICE

WEBSITES

1. All medical and health advice posted on the website of a health professional should only be provided by registered health professionals and this should be disclosed
2. All links on the websites of health professionals should be reputable**
3. Information displayed on a website of a health professional should be updated at least bi-annually
4. Information displayed on a website of a health professional should clearly separate the factual information from the promotional content
5. Before referring a patient to a website the following checks should be done
    - 5.1 *Date*-Information should be the most recent evidence-based information (not older than two years or at least updates should be within the last two years)
    - 5.2 *Source*: should be credible and reliable
    - 5.3 *Bias*: Information must be presented in an unbiased manner
    - 5.4 *Accuracy;* whether the information is found to be true and correct
    - 5.5 *Origin* of the information; what was the information based on
    - 5.6 *Peer-reviewed* the procedure for peer-review should be indicated;
    - 5.7 *Accredited;* though not a requirement; if present the health professional should check for conflict of interest
    - 5.8 *Advertising policy* of the website: should be available for patients to peruse if they so choose. Indicate if anyone can place an advertisement if there are any regulations to adhere to other than just payment
    - 5.9 *Maintenance of the website;* indicate *who pays* and does the payee influence what information or how the information is presented on the site

** Highly regarded

5.10 *Purpose* of the website the information was found on – indicate whether the content is for promotion purposes.

E-MAIL COMMUNICATION

1. The patient should be informed that e-mail communication between the health professional and the patient is designed to supplement the services offered and is not intended to replace a face to face consultation

2. E-mail correspondence regarding individual therapeutic advice or disease management can only commence after the patient has been assessed by the health professional

3. Health professionals who are willing to provide an e-mail service to their patients should ensure that the necessary security has been installed to ensure confidentiality

4. E-mail correspondence between the health professional and the patient should be as concise as possible

5. E-mail correspondence between the health professional and the patient should not be used for the sole purpose of commercial advertising or financial gain

6. Mailing lists of patients should not be made available to anyone without prior written consent of the patient or sold for financial incentives

NB!! Health professionals who do not comply with the policy can be held liable for disciplinary action (when the policy has been finalized)

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ADDENDA

ADDENDUM 1

Use of Information Technology in Physician Practices

1. Do you have access to a computer at your current office practice?

☐ **YES** ☐ **NO -- PLEASE SKIP TO QUESTION #2**

*If **YES**, please answer the following.*

a. Do you have internet access at your current office practice?

☐ **YES** **What type of internet access do you have?** *(Please ✓ all that apply)*

☐ Dial-up ☐ High Speed (i.e. cable or DSL) ☐ Wireless

☐ **NO**

b. Do you routinely use the available computer? (at least once on ½ of all business days)

☐ Yes ☐ No

c. Do other, non-physician, staff at your office use the available computer?

☐ Yes ☐ No

d. Does the computer get used in the scope of your practice?

☐ **YES** **For what type of functions?** *(Please ✓ all that apply)*

- ☐ Scheduling of patients appointments
- ☐ Billing/ charge capture
- ☐ Drug references/Medication interactions
- ☐ Access to reference materials
- ☐ Electronic prescribing of drugs
- ☐ Electronic order entry (e.g., labs, x-rays)
- ☐ Patient registration
- ☐ Dictation
- ☐ Lab results
- ☐ Bills/claims submission
- ☐ Weight based dosing
- ☐ Patient records
- ☐ Other: (*Please Specify)* _____

☐ **NO**

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2. Do you currently own a personal digital assistant (PDA) (i.e., Palm Pilot or Pocket PC)?

☐ **YES** ☐ **NO**

3. Do you routinely use a PDA in your office practice? (at least once on ½ of all business days)

☐ **YES** ☐ **NO**

If Yes, for which of the following functions do you use your PDA? *(Please ✓ all that apply)*

- ☐ Drug references
- ☐ Medication interactions
- ☐ Access to reference materials
- ☐ Electronic Prescribing of medications
- ☐ Electronic order entry (e.g., labs, x-rays)
- ☐ Calendar and other organizer functions
- ☐ Other: (*Please Specify)* _____
- ☐ Charge capture
- ☐ Patient records
- ☐ Lab results
- ☐ Bills/claims submission
- ☐ Weight based dosing
- ☐ Dictation

4. **Do you <u>personally</u> use email from your office practice to communicate with <u>patients</u>?**

☐ **YES** ☐ **NO -- PLEASE SKIP TO QUESTION #4C**

If YES, please answer the following:

a. How often do you email patients?

☐ Often (at least once on ½ of all business days) ☐ Occasionally ☐ Rarely

b. Which of the following policies, **<u>if any</u>**, do you require for e-mail with your patients?

☐ Establish a turnaround time for messages

☐ Inform patients about privacy issues with respect to e-mail

☐ Print e-mail communications and place in patient's chart

☐ Establish types of transactions (i.e., prescription refill, appointment scheduling, etc.)

☐ Instruct patients to put category of transaction in subject line of message

☐ Request patients put their name or identification number in body of message

☐ Configure automatic reply to acknowledge receipt of patient's message

☐ Send a new message to inform patient of completion of request

☐ Request patients use auto-reply feature to acknowledge reading clinician's message

☐ Develop archival and retrieval mechanisms

☐ Explain to patients that their message should be concise

☐ Remind patients when they do not adhere to guidelines

☐ When e-mail messages become too lengthy, notify patients to come in to discuss or call them

c. **If you <u>DON'T</u> personally use email with patients:** *Please answer the following:*

Would you like to communicate with your patients by email in the future?

☐ Yes ☐ No ☐ Don't Know Yet

5. **Other than patients, do you use email from your practice with any other groups?**

☐ **YES** ☐ **NO**

If YES, which of the following groups do you use email with? *(Please ✓ all that apply)*

☐ Family member or caregiver of patients
☐ Other doctors
☐ Business related communications (e.g., with insurers, pharmacies, etc.)
☐ Hospitals
☐ Pharmaceutical companies
☐ My personal friends or family members
☐ Other (please specify):_____

6. Does your current office practice use a Registry or Disease Management software system?

☐ **YES** ☐ **NO**

If **YES**, which of the following chronic diseases are followed? *(Please ✓ all that apply)*

- ☐ Diabetes
- ☐ Coronary Artery Disease
- ☐ Hypertension
- ☐ Heart Failure
- ☐ Preventive Care
- ☐ Other: (*Please Specify)*: _____

7. Does your current office practice have an Internet website available to patients?

☐ **YES** ☐ **NO** If **NO**, do you plan to get a website? *(Please ✓ one)*

- ☐ **YES**, very soon (within 1 year)
- ☐ **YES**, but not within the next year
- ☐ **NO**

8. Does your current office practice use electronic health records (EHR)?

EHR is defined as a paperless form of the medical record that requires the provider to enter patient information (i.e., clinical notes) into a computer system instead of doing so on paper.

☐ **YES**

If yes, what YEAR best describes when you began using EHR in your practice _____
(please indicate year)

If yes, please specify the vendor of your EHR system:_____

☐ **NO** *Please answer the following:* **Are you considering getting EHR?** *(Please ✓ one)*

- ☐ Yes, very soon (within 1 year)
- ☐ Yes, but not within the next year
- ☐ No, I am not considering getting EHR at this time

9. Do you personally routinely use Electronic Health records (EHR) in your office practice?

☐ **YES** ☐ **NO**

If YES, Which of the following functions does your EHR include? *(Please ✓ all that apply)*

- ☐ Problem list
- ☐ Procedures
- ☐ Diagnoses
- ☐ Medication list
- ☐ Allergies
- ☐ Patient demographics (i.e., age, DOB, etc.)
- ☐ Clinical notes
- ☐ Electronic prescribing of medications
- ☐ Electronic order entry (i.e., labs or x-rays)
- ☐ Electronically available lab data/ results
- ☐ Electronically available x-ray results
- ☐ Electronic connection to pharmacy info
- ☐ Patient scheduling
- ☐ Weight-based dosing calculations
- ☐ Growth charting
- ☐ Clinical decision support
- ☐ Patient education materials
- ☐ Coding advice to physicians
- ☐ Advance directives
- ☐ Access to reference material
- ☐ Preventive service reminders
- ☐ Auto-updated insurance coverage info
- ☐ Offsite access/ log-in capability
- ☐ Other (*Specify)*:_____

10. Please indicate how each potential barrier affects your decision to continue (or expand) using EHR. If you do not currently use EHR, please respond by indicating how much each barrier contributes to why you don't currently use EHR in your office practice.

	POTENTIAL BARRIERS			
Productivity	**Major Barrier**	**Minor Barrier**	**Not a Barrier**	**Not Applicable**
• Lack of time to acquire, implement such a system	☐	☐	☐	☐
• Entering data into computer can be cumbersome	☐	☐	☐	☐
• No time to learn how to use such a system	☐	☐	☐	☐
• The system would be difficult to use	☐	☐	☐	☐
• EHR may slow me down	☐	☐	☐	☐
• Disrupts workflow and/or office's physical layout to accommodate going to a computerized system	☐	☐	☐	☐
• Temporary loss of productivity and/or revenue during EHR system implementation phase	☐	☐	☐	☐
Financial				
• Inadequate Return on Investment (ROI)	☐	☐	☐	☐
• Upfront cost of hardware/software are too high	☐	☐	☐	☐
• Ongoing maintenance costs would be too high	☐	☐	☐	☐
Technical				
• Lack of uniform data standards within the industry	☐	☐	☐	☐
• Products available do not meet my needs	☐	☐	☐	☐
• Me and/or my staff don't have any technical knowledge	☐	☐	☐	☐
• Temporary loss of access to patient records if computer crashes or power fails	☐	☐	☐	☐
Patients				
• Privacy/confidentiality concerns (i.e., electronic records not secure)	☐	☐	☐	☐
• Patient resistance or not wanting their physicians to use EHR	☐	☐	☐	☐

11. How satisfied are you with the level of computerization in your current office practice?

☐ Very Satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat Dissatisfied ☐ Very Dissatisfied

12. Overall, how sophisticated of a computer user do you consider yourself?

☐ Very Sophisticated ☐ Sophisticated ☐ Neutral ☐ Unsophisticated ☐ Very Unsophisticated

13. Overall, how satisfied are you with your current medical practice?

☐ Very Satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat Dissatisfied ☐ Very Dissatisfied

DEMOGRAPHIC INFORMATION

14. Which of the following best describes the area in which you currently spend the majority of your practice time? (Please select only **one** choice)

- ☐ Family Medicine
- ☐ Internal Medicine
- ☐ Pediatrics
- ☐ OB/GYN
- ☐ General Surgery
- ☐ Surgical Specialty *(Specify)*_____
- ☐ Medical Specialty *(Specify)*_____
- ☐ Other *(Specify)* _____

15. Estimate the percent of your practice that is made up of patients in the following age groups:

0-18 years _____ %
19-44 years _____ %
45-64 years _____ %
65 years and over _____ %

16. Approximately what percentage of your patients have the following insurance coverage?

Medicare _____ %
Medicaid _____ %
Private insurance _____ %
Self-pay or uninsured _____ %

17. How many physicians, including yourself, work at the practice location where you spend the majority of your time?

_____ # of physicians

18. Which single setting best describes where the majority of your time is spent?

- ☐ Single specialty practice
- ☐ Multi specialty practice
- ☐ Hospital or Emerg. Dept. (hospital employee)
- ☐ Hospital-owned office-based practice (hospital employee)
- ☐ Group or staff model HMO
- ☐ Academic health center/ university setting
- ☐ Community health center
- ☐ County health department
- ☐ Other *(Specify)* _____

19. How long have you practiced . . .

In your current community? _____ **YEARS**
Total years in practice (since medical school graduation) _____ **YEARS**

20. Race/Ethnicity:

- ☐ White non-Hispanic
- ☐ African-American or Black non-Hispanic
- ☐ Hispanic
- ☐ Asian
- ☐ Other

Gender:

- ☐ Male
- ☐ Female

Age: _____ (years)

21. If you are willing to participate in follow-up research related to this survey, please mark the following box: ☐ *(Your responses will always be kept confidential)*

☐ **Yes**, I would like to receive a summary of the findings. Email:_____

Thank you for your help!!!

Please return survey in the pre-addressed, postage-paid envelope to:
FSU Survey Research Laboratory Tallahassee, Florida 32306-2221

ADDENDUM 2

ADDENDUM 2: The HONcode Principles for Medical and Healthcare Sites

We present the eight principles of the **HONcode**, prepared by the **Health On the Net Foundation (HON)**, a non-profit NGO based in Geneva, Switzerland, established in 1995 during the conference "The Use of the Internet and World-Wide Web for Telematics in Healthcare". The Health On the Net Foundation, accrediting medical and healthcare sites around the world, is in Special Consultative Status with the Economic and Social Council of the United Nations; it is supported by Geneva local authorities and closely co-operates with the Geneva University Hospital and the Swiss Institute of Bioinformatics.

Principle 1

Any medical or health advice provided and hosted on this site will only be given by medically trained and qualified professionals unless a clear statement is made that a piece of advice offered is from a non-medically qualified individual or organisation.

Principle 2

The information provided on this site is designed to support, not replace, the relationship that exists between a patient/site visitor and his/her existing physician.

Principle 3

Confidentiality of data relating to individual patients and visitors to a medical/health Web site, including their identity, is respected by this Web site. The Web site owners undertake to honour or exceed the legal requirements of medical/health information privacy that apply in the country and state where the Web site and mirror sites are located.

Principle 4

Where appropriate, information contained on this site will be supported by clear references to source data and, where possible, have specific HTML links to that data. The date when a clinical page was last modified will be clearly displayed (e.g. at the bottom of the page).

Principle 5

Any claims relating to the benefits/performance of a specific treatment, commercial product or service will be supported by appropriate, balanced evidence in the manner outlined above in Principle 4.

Principle 6

The designers of this Web site will seek to provide information in the clearest possible manner and provide contact addresses for visitors that seek further information or support. The Webmaster will display his/her E-mail address clearly throughout the Web site.

Principle 7

Support for this Web site will be clearly identified, including the identities of commercial and non-commercial organisations that have contributed funding, services or material for the site.

Principle 8

If advertising is a source of funding it will be clearly stated. A brief description of the advertising policy adopted by the Web site owners will be displayed on the site. Advertising and other promotional material will be presented to viewers in a manner and context that facilitates differentiation between it and the original material created by the institution operating the site.

Source: http://www.hon.ch/HONcode/Conduct.html Copyright © Health On the Net Foundation

ADDENDUM 3

ADDENDUM 3: Questionnaire *KNOWLEDGE, BELIEFS AND PRACTICES OF DIETITIANS AND DOCTORS IN SOUTH AFRICA ON THE USE OF THE INTERNET IN HEALTHCARE*

DEMOGRAPHY

1 GENDER:

Male	
Female	

2. AGE AT LAST BIRTHDAY: _____(in years)

3 PROFESSION: _____

4 POPULATION GROUP: (please tick appropriate one)

White	
Black	
Coloured	
Asian	
Other	

5 In which of the following areas do you currently spend most of your practice time? (Please choose one only)

Community health		**Internal medicine**	
Therapeutic nutrition		**Paediatrics**	
Academia		**Obstetrics/Gynaecology**	
Research		**Food-service management**	
Family medicine		**Other (please specify)**	
Psychiatry		**Surgery**	

6 Which of the following best describes your practice setting? (Please choose the most appropriate only)

Solo private practice –General Practitioner/Dietitian	
Multi-Disciplinary practice	
Academic /university setting	
Community Health Centre	
State Hospital	
Private Hospital	
Other	

7 Approximately what percentage of your patients have the following medical cover

Medical Aid	**%**
Self-pay or uninsured (cash)	**%**
Dependant on state health	**%**
n/a	

8 How many years have you been practicing/registered?

8.1 In your current position ? _____ years

8.2 Since graduation (including the community service year if applicable)

_____ Years

9 Do you have access to the internet in your practice or at home?

yes	
no	

If yes please answer the following

9.1 Where do you have access to the internet? (choose 1 in per column)

	internet	**e-mail**
Practice		
Home		
Practice and home		
Other (specify)		

E-MAIL USE

10 Do you use internet / e-mail from your practice or from home to communicate with patients ?

yes	
no	

10.1 Of those listed below, indicate why you use e-mail in your practice if applicable. Please tick all that are relevant

REASON FOR USE	**YES**	**NO**
Remind about appointments		
Update personal information		
Request information		
Renew a prescription		
Send a new message to inform patient of completion of request		
Save time on a phone call		
Inform about new products / services available		
Inform them about test results		
Not applicable		

11 Tick the functions of the following listed below, that are incorporated as part of e-mail communication with your patients if applicable

FUNCTIONS	YES	NO
Inform patients about privacy issues with respect to e-mail		
Print e-mail communications and place in patients chart		
Establish a turnaround time for messages		
Configure automatic reply to acknowledge receipt of messages		
Explain to patients that their message should be concise		
When e-mail messages become too lengthy, request patients to come in and see you		
Remind patients that e-mail cannot replace a one-to-one consultation		
Inform patients about risks related to e-mail communication		
Not applicable		

12How often do you use the internet / e-mail in your practice ? (Choose one per column according to frequency)

	internet	e-mail
Times per day		
Times per 5 day working week		

13 If you don't use e-mail with patients would you like to communicate with patients via e-mail in the future?

yes	
no	

14 Has e-mail / internet improved the quality of care of your patients (choose one per column)?

	internet	e-mail
yes		
no		
n/a		

14.1Please list an example to illustrate your answer

_____
_____
_____

INTERNET USE

15 Does your practice have an internet site available to patients?

yes	
no	

15.1 If yes why do you have one ? (Please tick the most important reason)

Marketing purposes	
Health promotional tool	
To access e-mail	
For research purposes	
Other (Please specify)	
n/a	

15.2 If no why not ? (Choose one only)

Too expensive to maintain	
Time consuming	
Cannot maintain update	
Other(please specify)	
n/a	

15.3 Do you utilize the internet for any of the following reasons indicated below? Please tick the appropriate column.

REASON	YES	NO
Health information searches		
Nutritional information searches		
Research -Work related		
Research-Personal		
Shopping		
Entertainment		
Travel		
Other (please specify)		

16 Do you refer patients to the internet ?

yes	
no	

16.1 Which of the following do you do before referring a patient to the internet (tick the appropriate items)?

ITEM CHECKED	
Source of information	
Date of information	
Unbiased view of information	
Accuracy of information	
The basis of the information	
Peer–reviewed site	
Affiliation to an accredited association	
Advertising policy	
If the links on the particular website are reputable	
Who pays for the site ?	
The purpose of the site ?	

17 What do you consider as the most important item(s) to check? Please tick.

ITEM CHECKED	YES	NO
Source of information		
Date of information		
Unbiased view of information		
Accuracy of information		
The basis of the information		
Peer–reviewed site		
Affiliation to an accredited association		
Advertising policy		
If the links on the particular website are reputable		
Who pays for the site ?		
The purpose of the site ?		

UNDERGRADUATE HEALTH SCIENCES CURRICULUM

18 Did you receive education in the use of the internet in healthcare during your undergraduate training?

yes	
no	

19 Do you think it is important to incorporate education on the internet or email use in health care practice as part of the undergraduate health sciences curriculum (choose one per column).

	internet	e-mail
yes		
no		

20 If yes, which aspects of the internet/e-mail use in the healthcare practice would you recommend to incorporate as part of the undergraduate health sciences curriculum ?

_____
_____
_____
_____

Thank You for your time !

ADDENDUM 4

UNIVERSITEIT·STELLENBOSCH·UNIVERSITY
jou kennisvennoot • your knowledge partner

KNOWLEDGE, BELIEFS AND PRACTICES OF DIETITIANS AND DOCTORS IN SOUTH AFRICA ON THE USE OF THE INTERNET IN HEALTHCARE -

Dear Colleague

My name is Baheya Najaar. I am registered Masters student in Nutrition at Stellenbosch University.

I am conducting research on electronic communication between dietitians and doctors and their patients. Currently there is no information available in this regard concerning South Africa. Neither are there specific guidelines available for e-mail and internet communication with patients in healthcare practice in South Africa.

I would appreciate it if you are able to take 10-15 min of your time to complete the questionnaire and assist me with this research. The aim of the study is to determine the level of internet and e-mail use amongst Dietitians and Doctors in South Africa.

The questionnaire is in the form of a web-based survey which can be located at http://www.sun.ac.za/nicus/nicusSurvey/onlinesurveystart.html . If for some reason you are unable to access the website please do not hesitate to contact me directly or request an alternative format of the questionnaire.

Confidentiality will be maintained as the questionnaires will be coded and no data will be directly linked to the practice or the professional.

By completing the questionnaire you are consenting to participate in the study.

The outcome of the study would be to formulate recommendations for guidelines for e-mail and internet communication with patients in healthcare. The results of the study will be posted on the website on completion of the study.

I thank you for participating and I value your input.

Kind regards

Baheya Najaar RD (SA)

021 938 9176
084 582 0599
bn2@sun.ac.za

ADDENDUM 5

UNIVERSITEIT STELLENBOSCH UNIVERSITY

19 February 2007

Mrs B Najaar
Division of Human Nutrition
Dept of Interdisciplinary Health Sciences

Dear Mrs Najaar

RESEARCH PROJECT : "KNOWLEDGE, BELIEFS AND PRACTICES OF DIETITIANS AND DOCTORS IN SOUTH AFRICA ON THE USE OF THE INTERNET IN HEALTH CARE"

PROJECT NUMBER : N06/11/224

My letter dated 30 November 2006 refers.

At a meeting that was held on 7 February 2007 the Committee for Human Research ratified the approval of the abovementioned project.

Yours faithfully

PP:

CJ VAN TONDER
RESEARCH DEVELOPMENT AND SUPPORT (TYGERBERG)
Tel: +27 21 938 9207 / E-mail: cjvt@sun.ac.za

CJVT/pm

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