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INFORMATION PROVIDERS: CONTEXT AND RELATED FACTORS IN THE INFORMATION BEHAVIOUR OF PHARMACEUTICALS AND NICE

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INFORMATION PROVIDERS: CONTEXT AND RELATED FACTORS IN THE INFORMATION BEHAVIOUR OF PHARMACEUTICLES AND NICE. PART 3

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ABSTRACT

The study underpin two information providers seeking behaviour, while paying more attention to NICE, since the part two of this research has done justice to pharmaceuticals. However, pharmaceutical is used here to show how they compliment the other. The National Institute for Health and Care Excellence (NICE) is the independent organisation responsible for developing national guidance, standards and information on providing high-quality health and social care In order to gain in-depth insights into information providers' views of their roles and activities, qualitative interviews were carried out with employees of a selection of pharmaceutical companies in the UK and with staff working for NICE. "The qualitative interview is a key venue for exploring the ways in which subjects experience and understand their world. Semi-structured interviews were held with UK-based staff in pharmaceutical companies. Similar interviews were held with staff at NICE who are involved in the provision of guidance and information to NHS doctors.The findings indicate that the information from NICE may be directive in nature – its intention is to direct users in their actions in conformity with NICE's goals and perspective on what is appropriate and cost-effective patient management

1.1 INTRODUCTION

NICE was established by the UK government in 1999 as the National Institute for Clinical Excellence to "reduce variation in the availability and quality of NHS treatments and care" Upon taking over the functions of the Health Development Agency in 2005 the full name of NICE changed to the National Institute for Health and Clinical Excellence. In April 2013 it took on responsibility for developing guidance and standards in social care and its name changed to the National Institute for Health and Care Excellence. NICE provides various types of guidance and recommendations on clinical practice to health care professionals including the following (details are from the NICE website, http://www.nice.org.uk/):

• Clinical guidelines – "recommendations on the appropriate treatment and care of people with specific diseases and conditions within the NHS in England and Wales. Clinical guidelines are based on the best available evidence"

• Technology appraisals – "recommendations on the use of new and existing medicines and treatments within the NHS in England and Wales"

• NICE quality standards – "a concise set of statements designed to drive and measure priority quality improvements within a particular area of care. NICE

quality standards are derived from the best available evidence such as NICE guidance and other evidence sources accredited by NICE"

• NICE Pathways – an online tool that provides "access, topic by topic, to the range of guidance from NICE, including quality standards, technology appraisals, clinical and public health guidance" (http://pathways.nice.org.uk/) NICE is also responsible for NHS Evidence, a web-based search tool and portal that provides access to "authoritative clinical and non-clinical evidence and best practice ... It helps people from across the NHS, public health and social care sectors to make better decisions as a result" (https://www.evidence.nhs.uk/about-us). The above quotations from its websites illustrate NICE's contention that the guidance it issues is based on "the best available evidence" and that it improves clinical practice and decision making. It plays a key role in determining what the "best" evidence is and which treatments should be used in the NHS.

NICE also emphasizes its independence and that of its guidance: "The National Institute for Health and Care Excellence (NICE) is the independent organisation responsible for developing national guidance, standards and information on providing high-quality health and social care ... All of our guidance, quality standards and other advice products are independent and authoritative" (http://www.nice.org.uk/media/89C/8E/NICE_Charter.pdf). The NHS also views NICE as independent: "The National Institute for Health and Clinical Excellence (NICE) is an independent organisation that provides national guidance and standards on the promotion of good health and the prevention and treatment of ill health" (http://www.nhs.uk/NHSEngland/thenhs/healthregulators/Pages/nice.aspx).

However, claims about the independence of NICE need to be qualified. It was originally set up as a Special Health Authority within the NHS under the direction of the Secretary of State for Health. Following its reorganization in April 2013 it has become a Non Departmental Public Body established in accordance with the Health and Social Care Act 2012 (http://www.legislation.gov.uk/ukpga/2012/7/contents/enacted).

The NICE website states that "operationally we are independent of government" (http://www.nice.org.uk/aboutnice/whoweare/who_we_are.jsp). NICE is, however, accountable to its sponsor department, the Department of Health, and the Chair of NICE is directly accountable to the Secretary of State for Health. The Health and Social Care Act requires that NICE, in producing its guidance, "must have regard to the broad balance between the benefits and costs of the provision of health services or of social care in England". Thus an important part of its remit is to help ensure that treatments are cost-effective. This has led to criticisms suggesting that its recommendations are not entirely impartial: "It is widely acknowledged that many of NICE's appraisals have been successful, and have driven up standards in the NHS - along with other elements of the quality agenda introduced since 1997. At the heart of the majority of criticisms of NICE, however, is the requirement that its decisions reflect the cost effectiveness of treatments: this, it is argued, means that its clinical recommendations are inextricably tied up with political decisions about value for money" (http://www.politics.co.uk/reference/national-institute-for-health-and clinicalexcellence).

In view of the very important roles that NICE plays in determining the best evidence about treatments and in providing guidance on appropriate clinical practice within the NHS it is of interest to use the ISCM to study its behaviour as an information provider.

2.1 LITERATURE REVIEW

Johnson (1997) proposed a comprehensive model of information seeking (CMIS), which he developed in the context of patients and others seeking information about cancer. He notes that they receive many health-related communications through the media and other "information carriers", but these communications may not meet the receivers' needs. "Communication research and theory have been dominated by a source perspective, primarily related to the field's obsession with persuasion ... the nature and motives of receivers have been downplayed or ignored" (Johnson, 1997: 170). Johnson set out to redress this by focusing on the perspective of the information receiver or seeker. The CMIS refers to seven factors grouped under three headings, antecedents, information carrier factors and information-seeking actions.

The antecedents "determine the underlying imperatives to seek information" (Johnson, 1997). According to the model they are:

• the information seeker's demographics – age, sex, ethnicity, education and socioeconomic status;

• the information seeker's experience of the area of interest;

• the salience of information – its personal significance, relevance and applicability;

• the information seeker's beliefs – for example, belief that information exists that can help solve a problem and that he/she can find it (Case *et al.*, 2005)

Johnson's concept of salience as an antecedent needs clarification. The salience of information in terms of its significance and applicability can of course be assessed only after it has been found – the assessment is not an antecedent to information seeking. In discussing salience, Johnson refers to Dervin's sense-making framework (Dervin *et al.*, 2003), and notes that the key factor leading to information seeking is the perception of a gap in existing knowledge. If an individual believes that information can be found that is likely to be sufficiently salient to bridge the gap, this expectation may motivate information seeking. Johnson gives an example of a person who may decide to seek information about cancer: "Salience refers to the personal significance of cancer-related information to the individual. An individual might wonder, 'Is it important that I do something?' Perceptions of risk to one's health especially are likely to result in information-seeking action" (Johnson *et al.*, 2001). In the model the salience of information influences an individual to seek that information if he/she believes that it is likely to be important and relevant.

Information carrier factors are the characteristics and utility of a particular source which influence an individual's decision to seek information from that source. In considering the characteristics of carriers, Johnson refers to factors such as their credibility and authority and the comprehensibility of the information (Johnson, 1997; Johnson *et al.*, 2001). He notes, however, that ease of access may count for more than credibility and authoritativeness (Johnson, 1997, page 124). Johnson's concept of the utility of an information carrier relates to the relevance,

topicality and interest of the information and its usefulness and importance for achieving the user's goals.

The third component of the model, information-seeking actions, involves choosing which source(s) to use and the extent and depth of the search. In discussing how users choose sources, Johnson refers to the uses and gratifications approach from mass communication theory (Baran and Davis, 2003; Windahl *et al.*, 2009), suggesting that the user of mass communication seeks the content that seems to be the most gratifying, depending on the user's particular needs and interests. Thus certain media or information products may be selected in preference to others. Johnson acknowledges that the uses and gratifications perspective suggests that people are active, goal-directed information seekers, which is not always the case. Also, as noted above, ease of access influences the choice of an information source. The model does not describe in any detail the steps involved in information seeking – "The CMIS is oversimplified by design" (Johnson, 1997: 111). The validity of the CMIS has also been investigated outside the specific area of cancer information seeking. Johnson and his colleagues used it to study a large state government agency providing engineering and technical services and the findings helped to refine the model (Johnson *et al.*, 1995). DeLorme *et al.* (2011) studied consumers' behaviour in seeking information about prescription drugs after visiting a doctor and the factors affecting their choice of sources. This was found to be more complex than suggested by the model: "Although our study shows some support for the modified Comprehensive Model of Information Seeking, the results indicate influencing factors vary by information source types examined, suggesting the model is more complex than predicted.

2.2 GORMAN'S MODEL

Another model developed in the context of health-related information is that of Gorman (1999), which relates to information seeking by physicians in primary care:

The main activity of primary care physicians is patient management. The model sees information seeking as a related but sometimes unnecessary activity: "... the primary goal of the clinician and the patient is not to obtain information but to find some resolution of the patient's health problem" (Gorman, 1999). At the start the physician is in a state of unrecognized information need. He or she does not know what information will be needed until faced with a specific patient problem. If, when the problem presents itself, the physician is aware that he or she does not have necessary information to deal with it, a state of recognized information need arises. The next stage, pursued information need, occurs if the physician decides to seek the required information. In doing this, he or she makes a choice of which knowledge resources to use. However, the model does not elaborate on the steps involved in information seeking or the resources used. If the information needed to answer the clinical problem is found, the stage of satisfied information need is reached.

Gorman points out that information seeking is only one of the strategies employed once the information need has been recognized, and that only about a third of clinical questions are pursued. Another commonly used strategy is deferral or "watchful waiting" when immediate action is not deemed necessary, perhaps because the patient's problem is not serious and may resolve without treatment. A third strategy is referral to a specialist, in which case the physician does not need to search for information – instead, the specialist is likely to provide information and recommendations on appropriate treatment. The predominant strategy, however, is for the physician to tolerate uncertainty, make do with the information at hand and act on the basis of his/her knowledge and experience.

In an earlier study Gorman found two motivating factors, the urgency of the patient's problem and a belief that an answer to the particular question exists, that significantly increased the likelihood that a physician would pursue an information need (Gorman and

Helfand, 1995). Although this model refers specifically to physicians, it is of wider relevance in highlighting the facts that an information user may have unrecognized information needs and that even when a need is recognized, the user may not actively pursue it.

2.3 WILSON'S MODEL

Wilson's models (Wilson, T.D., 1981, 1999; Wilson and Walsh, 1996) provide graphical representations of information behaviour that take into account factors such as those identified in other models, including contextual, role-related and personal (psychological and demographic) factors. They have been elaborated over many years and have been widely cited (Wilson, 2005), and Wilson's ideas have had a significant effect on the study of information behaviour (Bawden, 2006). They have been used by researchers to study information seeking by, for example, students (Ford *et al.*, 2001), visually impaired people (Beverley *et al.*, 2007) and health care managers (Niedzwiedzka, 2003). Taken together the models identify many of the factors affecting information seeking behaviour and for this reason they are reviewed in detail here. Addressing the importance of contextual factors, Wilson portrays the information user in his/her "life world" obtaining information from the "universe of knowledge" Wilson refers to the user's life world as "the totality of experiences centred on the individual as an information user." The world of work is an important part of this life world and within this there are "reference groups" – fellow professionals, peer groups etc. – with which the user identifies. Among health care providers, for example, the importance of professional colleagues as sources of guidance and information is well established (McKnight and Peet, 2000). The user is in contact with various information systems through which information resources may be accessed (paths e to k in the diagram), though the user may also obtain information directly without using a formal information system (paths a to d).

An information system may include "technology" and a "mediator". When Wilson first described the model he referred to "technology" as a "manual card file, computer terminal,

etc." At that time the personal computer was in the early stages of development and the World Wide Web was not available. A "mediator" was "generally a living system, i.e. a human being". Although information professionals may still play the role of mediator, web-based systems with user-friendly interfaces and assisted searches can include both "mediator" and "technology" aspects….

3.1 METHODOLOGY

In order to gain in-depth insights into information providers' views of their roles and activities, qualitative interviews were carried out with employees of a selection of pharmaceutical companies in the UK and with staff working for NICE. "The qualitative interview is a key venue for exploring the ways in which subjects experience and understand their world. It provides a unique access to the lived world of the subjects ..." (Kvale, 2007: 9). Semi-structured interviews were held with UK-based staff in pharmaceutical companies. Similar interviews were held with staff at NICE who are involved in the provision of guidance and information to NHS doctors.

Interviews were carried out by telephone to minimize inconvenience to the participants and in the hope of encouraging participation. Telephone interviewing in qualitative research has been reported to be capable of producing comparable results to those from face-to-face interviews (Sturges and Hanrahan, 2004). The interviews were recorded, with permission from the interviewees, and were then transcribed. The transcripts were sent to the interviewees to check for accuracy

For the interviews with NICE 16 members of staff in a variety of roles were initially contacted, of whom four agreed to participate. Subsequently two further potential interviewees were identified and one agreed, bringing the total number of interviewees to five, a response rate of 5/18 or 28 per cent.. They covered a range of roles as follows:

• One was concerned with the production of clinical guidelines providing NICE guidance for health care professionals on the management of patients and treatment of different illnesses

• Two were involved in assisting with the implementation of NICE guidance within the NHS

• One was a manager in charge of user research for NHS Evidence, a major information resource provided by NICE (http://www.evidence.nhs.uk/)

• One led the enquiry handling team that deals with questions from healthcare professionals, researchers and the public about NICE and its guidance

Interviewee	Sex	Education/ qualification	Job function	Time at NICE (years)	NHS experience (years)*	Other career experience
P	M	Pharmacist	Implementation of guidance; education	3	34	Marketing, public relations
Q	F	First degree	Enquiry handling and communications	4	7	
R	F	First degree and MBA	Implementation of guidance	3	10	Marketing, consultancy
S	F	First degree	User research, NHS Evidence	3	15	
T	F	Physician	Overseeing production of guidelines; strategy	3	24	

Four interviewees were female and one was male. All had degree-level or higher qualifications and two were qualified heath care professionals: one physician and one pharmacist. They had worked at NICE for between 3 and 4 years (mean 3.2 years).

Their working experience within the NHS (including their time at NICE) ranged from 7 to 34 years (mean 18.0 years). They therefore had extensive experience of the NHS and of NICE. Two also had career experience from outside the NHS. One had been employed in marketing and public relations roles for Help the Aged and the Health Protection Agency. The other had worked in marketing in a chemicals company, then worked for a non-profit organization and was subsequently self-employed as a consultant. None of the interviewees had worked in the pharmaceutical industry.

It had been anticipated that only a relatively small number of interviewees would be needed from NICE because it is a single organization with a consistent goal in its communication with physicians to provide guidance and advice that are "based on the best available evidence and set out the best ways to prevent, diagnose and treat disease and ill health" (http://www.nice.org.uk/media/89C/8E/NICE_Charter.pdf).

The mean length of the 18 interviews was 52 minutes, ranging from 28.6 minutes (for an interviewee who could spare only half an hour) to 1 hour 17 minutes. The transcripts from the interviews amounted to over 100,000 words for analysis. To provide a representative overview of the findings and to help readers judge the trustworthiness of the analysis an extensive selection of quotations from the interviews is provided in the following sections. As Baxter and Eyles (1997) note, "Quotations are important for revealing how meanings are expressed in the respondents' own words rather than the words of the researcher." They also comment: "While there need not be a model for the size and number of quotations, it is reasonable to expect some discussion why particular voices are heard and others silenced through the selection of quotes. " Quotations from all the interviewees are included in the following sections.

4.1 RESULTS AND ANALYSIS

The context in which NICE operates is different from that of the pharmaceutical industry. NICE (http://www.nice.org.uk/aboutnice/whoweare/who_we_are.jsp) was established by the UK government in 1999 to provide guidance on treatments and care provided in the NHS, with a requirement that treatments should be cost effective (Secretary of State for Health, 2005). The following extract shows that in issuing information NICE is guided by its remit from the Department of Health. Thus the environmental context in which NICE operates – working for the NHS with a remit to rationalize treatments and ensure cost-effectiveness – drives its communication activities, and the information it produces is not necessarily designed to meet the needs of individual physicians.

─ **Extract R42**

We're more the servants of the Department of Health I suppose than we are of the doctors and practitioners who use our guidance. I think doctors could perfectly well get on and treat patients without any guidance from NICE but the health service couldn't survive if they did. The reason we produce the guidance is actually for the good of the NHS as a whole. So providing information to doctors is a by-product of the fact that we have to provide information to the NHS. The process by which guidance is written is not constrained by what it is that practitioners need to know – it's constrained by a set of rules and processes about how NICE evaluates evidence and how it uses expert opinion to come to its conclusions about what is cost- and clinically effective. That is not driven bythe information needs of doctors.

From the ISCM it may be predicted that differences between the provider's context and that of the information user could lead to a mismatch between the information provided by a provider and that needed by users. Extract R42 suggests such a mismatch, and the distinction between NICE's environmental context and that of health care professionals is also noted in the following two extracts.

─ **Extract T31**

Well I think sometimes content is at odds with what people want. I think we're quite often perceived as doing things in an overly academic ivory tower type of way and

what we do isn't necessarily tailored to a more generalist audience. Thinking about clinical guidelines, we have a larger suite of guidelines that are applicable to say secondary care than to primary care.

– **Extract S52**

We're a bit separated from that at NICE – from the real world. It's a little bit ivory tower. It's not quite university ivory tower, I feel that we're somewhere in between. We've got a little bit of a foot in the NHS and a little bit of a foot in the academic ivory tower. I think that if we can move ourselves closer towards practice and understanding practice issues and what happens in practice we would be able to effect better change and implementation.

These quotations from two different members of staff at NICE both refer to a perceived "academic ivory tower" environment that is somewhat removed from the environment of at least some physicians such as those involved in primary care. The ISCM also refers to personal context, including knowledge and experience, as a possible influence on information providers' behaviour. Extract R121 provides an example of this:

– **Extract R121**

Because the people who volunteer to sit on our committees are by definition people who have an active interest in a particular condition, we do tend to get specialists. That includes the GPs, so if we're looking at something cardiovascular we will get a GP who has a special interest in cardiovascular medicine. So there is a bias towards specialization and a bias towards recommending treatments in special settings. Equally there is a lack of understanding of the complexity of managing one condition in an environment where that is one of many conditions – by which I mean general practice. If you get a load of people who are practicing cardiologists sitting around talking about a particular cardiology condition, their experience is about doing that probably in a tertiary centre which has all the gadgets and gizmos and lab results and everything available at the touch of a button. They sometimes make unrealistic demands on general practice like: "You should act on a blood result within six hours of taking the blood", whereas you haven't even got it back from the lab by then.

When producing its information and guidance on a particular subject NICE involves experts in that subject area. As this extract makes clear, the personal knowledge and experience of these specialists influence the guidance that they produce, but this may

not relate well to the working context of a general practitioner who may not have ready access to specialist equipment or services that are needed. All these extracts endorse the influence of contextual factors on the behaviour of an information provider, NICE, as suggested by the ISCM. The influence of NICE's goals and their link to its context in the NHS are illustrated in the following extracts.

− **Extract R32**

> *One of NICE's key roles is to provide the highest possible quality of information to medical practitioners in its very broadest sense. If you look at NICE as a provider of high-quality information, that would cover everything from advice on which drugs should be used, advice on which process to use, advice on when to refer, advice on what quality a service should be designed to meet, a whole range of products ... advice on what's safe and so on. So that simple phrase that NICE uses, which is that we advise the health service on cost and clinical effectiveness – what we actually do is we provide them with very high quality information to help them make decisions.*

− **Extract T23**

> *I'm just trying to think what's on the website now, what our stated aim as an organization is. It's to be the source of credible evidence for the NHS. These extracts describe NICE's aims of providing information to health care professionals about the management of patients and to be seen as the source of the "highest possible quality" information and "credible evidence". The goal is to influence the behaviour of health care professionals so that they manage patients in the ways that NICE judges to be both effective and cost-effective, as outlined in the next extract:*

− **Extract Q22**

> *The overall aims are to achieve higher standards in health care and to make sure that the NHS is using the most cost-effective treatments. It's also about stopping doing things that are ineffective, and thereby saving the NHS money. It is all about raising the quality of care. To achieve these aims we issue information because we want people to understand and follow the recommendations.*

Thus the information from NICE may be directive in nature – its intention is to direct users in their actions in conformity with NICE's goals and perspective on what is appropriate and cost-effective patient management: "we want people to ... follow the

recommendations." The ISCM shows a close connection between the provider's goals and contextual factors, and this link is illustrated for NICE in the following two extracts:

- **Extract S51**

  I must admit in the work I'm doing now I feel like we have a requirement from government to effect change in terms of behavioural change for research-based practice but I'm not sure how we're going to achieve that well unless we are closer to working with people

- **Extract R41**

  I think we would describe it as advice from the Secretary of State. Certainly our quality standards are described as advice to the Secretary of State. I think guidance would probably be described as advice to the health service. This terminology gets very messy. Guidance covers just about everything that we produce. Guidelines are one particular part of that – I'm talking about clinical guidelines. That would advise people about the best course of action with a particular patient, but "best" would encompass most cost- and clinically effective course of action. I think that's what we're here for – is to work out what is most cost- and clinically effective and then let that be publicly known so that people can use that information to inform their decision making.

NICE's operating context – its remit from government and the Secretary of State for Health – influence its goals ("to effect change" in clinical practice) and outputs ("advice to the health service"). However, there is recognition within NICE that these goals and outputs do not necessarily accord with the needs and views of physicians:

- **Extract T24**

  I think we'd like to think we understand doctors' needs for information and receptive to the feedback we receive and that we actively seek the views of those who use our information. I'm not sure that that approach is always entirely compatible with the task that we've been given. And I think probably our task or the organization task has been more one of having to deliver certain outputs and go as far as is reasonably possible to make sure that they're fit for purpose and used as widely as possible.

These extracts show that contextual factors can influence a provider's goals and information outputs as suggested in the ISCM, and that those outputs may not fully match the different context and needs of the user. The ISCM refers to the influence of perceptions on information behaviour – they may be the provider's perceptions of itself and the information it provides, of information users or of other providers. The extracts above provide some examples of the

perception by NICE staff of the information that it provides as being the "highest possible quality" and "credible evidence" that health care professionals should follow. Similarly:

− **Extract T21**

> *I think we see ourselves as being the key provider for the health service – but I think particularly for the medical profession – of the evidence base to support better decision-making, and that goes ... I'm talking more from the perspective of clinical guidelines because it's rather different in relation to drugs, in that if they've been appraised positively they come with a funding direction so that's not really about supporting decision-making, that's at a slightly different level.*

− **Extract T52**

> *Well I think there is so much information out there, isn't there, that I think some sort of badge or kite mark is valuable to enable people to distinguish. And I think NICE has actually achieved that credibility over the last ten years. It is seen as being a respected brand and it's looked up to throughout the world for what it does and how it does it.*

These comments show perceptions within NICE of its own importance as "the key provider" of information and guidance to health care professionals in the NHS and of the high credibility of the information it provides. However, the user's perceptions – of the provider, the information provided and its credibility and utility – may differ from those of the provider. Extract T31 cited above provides an example, suggesting that some physicians may not perceive NICE in the same way as it perceives itself: "I think we're quite often perceived as doing things in an overly academic ivory tower type of way and what we do isn't necessarily tailored to a more generalist audience." One of the ways in which NICE develops its perceptions of health care professionals and their needs is by actively seeking their feedback.

− **Extract R15**

> *Typically, the sorts of people we would see would be people with director in their title: chief executives, medical directors, the director of nursing, chief operating officer or whoever is head of the provider services, director of commissioning – those sorts of people. But we have another population of people we see, who are those we colloquially call NICE managers. Those are people in clinical governance, audit functions, whose role it is to facilitate the roll-out of NICE guidance. They will often*

be the people responsible for opening and reading our newsletter and disseminating guidance to various committees etc.

Perceptions based on discussions with these people may of course be inaccurate as relatively few physicians in the NHS are at the levels of seniority described here. As is the case with the pharmaceutical industry, goals are important motivating factors leading NICE to produce and communicate information, and in particular the goal of influencing the behaviour of health care professionals:

− **Extract Q22**

... we issue information because we want people to understand and follow the recommendations

At the time of the interviews the development and improvement of the information product NHS Evidence was in progress. Part of the motivation for this was to meet health care professionals' needs better and thereby to encourage its use and increase its influence:

− **Extract S11**

I have a senior analyst role as well as managing the programme so that it fits strategically with driving the business forward for NHS Evidence. That means that we have two main strands to our work. One is around usability – we want to be and aim to be a user-led service and so my role is to ensure that we involve users in design and development and in an iterative design process. Then we produce products and prototypes that we then test out with users and get more feedback. So eventually, hopefully we're producing a product that has been shaped by them. So that's the usability side. Then the other side of our work is understanding the market insights, market segmentation – understanding our audience really: who are our audience, how is it made up, what are their differing needs.

One of the inhibitory factors preventing NICE from producing information products and communications precisely tailored to meet users' needs is the variety of those needs and by implication limited resources within NICE:

− **Extract R62**

If we were to send all the cardiology stuff to this GP and all the dermatology stuff to that one, and it doesn't cover everything and it's too messy. It's not uniform – it depends on where people's interests lie. If they have a partner who's interested in dermatology and then they leave, the next person could be interested in maternity, so there's no way of ensuring that there's a good spread. So it would be unrealistic.

Another inhibitory factor, which limits NICE's ability to find information about users' needs is its budget:

– **Extract T71**
Well I think that given an unlimited budget we could do more about understanding what their particular needs are. NICE isn't an organization with a huge budget in the first place

As was the case with the pharmaceutical industry interviews, analysis of the interviews with NICE staff supports the validity of the ISCM in that context, goals, perceptions and motivating and inhibiting factors are key influences on an information provider's behaviour.

4.2 PHARMACEUTICAL

A defining element of a pharmaceutical company's context is that it is a commercial organization that is in business to make a profit – without profits a company will not survive – and a prime reason why companies issue information is to promote sales of their products. This is clear from the following extracts.

– **Extract B11**
I head up a marketing team with six direct reports that manage the two products that sit within our portfolio ... It's my role to manage the promotional messaging and information that lands to all stakeholder groups both internal and external in order to drive appropriate uptake of that medicine with patients.

– **Extract E11**
I will be responsible in the main for promotional material which concerns our brand and obviously we work with our med affairs team when it's to do with education in the disease area, or that sort of thing. Internally we obviously have a voice in what priority we communicate the educational factors which support the area which our brand plays in

– **Extract K53**
With promotion you're selecting key benefits that you think are particularly going to strike a note, resonate with the prescriber and so you are focusing particularly on some benefits that maybe give your drug an advantage in the class or in the therapy area. Whereas information is more of a balance, there's no particular emphasis on any one part of the drug's profile.

– **Extract F101**
At the end of the day we're a commercial company, so yes we want to sell our

drugs

The two marketing managers quoted in extracts B11 and E11 see their responsibilities as being to manage "promotional messaging", "drive appropriate uptake" of the company's medicines and to support the "brand". Extract K53 distinguishes between the promotional and non-promotional information that a company produces, noting that the former focuses on the "benefits" of the company's product compared with other medicines whereas the latter is more balanced. These quotations illustrate how the commercial nature and goals of a company influence much of the information it provides for physicians and other health care professionals, a fact concisely summarized in extract F101. There are other important contextual factors that affect pharmaceutical companies' information behaviour and moderate a purely commercial approach to information provision. The pharmaceutical industry operates in a heavily regulated environment and has to comply in its activities with legislation including the Human Medicines Regulations 2012 (http://www.legislation.gov.uk/uksi/2012/1916/contents/made), which regulate the advertising and promotion of medicines. The industry's self-regulatory code, the ABPI Code of Practice for the Pharmaceutical Industry (http://www.pmcpa.org.uk/thecode/), sets out requirements and standards for advertising, promotional activities and the provision of information that accord with the various legal and other requirements. Under the ABPI Code companies are required to review advertising and promotional material and to certify that it complies with these requirements. Senior staff members within the company are responsible for certifying material and at least one of them must be medically qualified or a pharmacist. The following extracts illustrate companies' procedures in this regard.

- **Extract J11**

    Most pharmaceutical companies have a medical team, a medical department, and within the medical department will sit physicians that are medically qualified that have moved out of practicing clinical medicine into industry. So their role is around ethical obligations, ensuring that practices around promotion, around material that's provided externally is suitable both from an ethical perspective and also compliant with the UK Code of Practice

- **Extract N71**

    We in the industry have the ABPI Code, which we must adhere to. And obviously any promotional claim or any data that is included in any promotional material is reviewed by a medic – doctor or pharmacist – and goes under internal review by a number of individuals to ensure that that claim is not ambiguous, there's no hanging comparisons for example, it can be substantiated by data and it in no way puts patient safety at risk.

- **Extract H63**

    The medic team and the medical director who actually approve our final bits of material, they are trying to absolutely take out that bias and they will question us if it comes over ... they will definitely push it back if they can see any bias.

- **Extract F11**

    Business Compliance Director, which means ABPI Code-related – keeping us as clean as possible with regard to Code issues; responsible for all of the SOPs that may fall out of the Code; and liaising with our Europe regional compliance team, because a lot of our directives and SOPs are European that we have to work with ... I get heavily involved with our ... anti-bribery testing is probably the broader term these days with the UK Bribery Act and the Foreign Corrupt Practices Act testing we have to do, business control function testing ... so we have quite strict controls.

Thus companies' information behaviour is influenced not just by their internal context and goals but also by the external context in which they operate, including legal requirements. The ISCM also refers to personal context, training, experience and job role as possible influences on information providers' behaviour. Extracts J11 and N71 refer to an important role of senior staff who are qualified physicians or pharmacists in reviewing promotional and other material to ensure compliance with the ABPI Code of Practice and with appropriate ethical standards. Extract H63 is a quotation from a marketing manager suggesting that marketing staff may produce information that is

biased and, if so, that the medical reviewer will "push it back". The company context or culture is not purely commercial: ethical considerations and a concern for patients also have an important influence as is evident from the following extracts.

− **Extract C31**
First and foremost we have a responsibility ... The responsibility, certainly in the medical mind, is very much framed around the risk-benefit profile, to absolutely make sure that if a patient's getting a medicine, then the patient's not being put at undue risk as a consequence of that decision. We do that by influencing and shaping the sales conversation – and the materials of course. We do that by the supply of the medical information service. And for specialists' needs particularly we do that by the supply of medical science liaison staff who engage in a deeper, more scientific conversation

− **Extract E34**
Interviewer: So you need to try to reduce the risk of problems with potential toxicity or side-effects of a product occurring – is that right?
Interviewee: Absolutely, yes, and for the obvious reason of the positive experience for the patient and the physician of our product, and of course the clear responsibility we have as a pharmaceutical organization or company or even as an industry, it's the standard at which we work. So it's almost like breathing, it is what we do – we have to make it clear. We wouldn't obviously be putting products on the market if they weren't safe either.

− **Extract K28**
Interviewer: What are your company's aims in providing information for doctors?
Interviewee: I think the same aims as any company, which is to be accurate, balanced, fair, objective, and point out the pros and the cons and make sure that patients are getting the right medicine at the right dose. I mean ultimately it does not benefit [the company] – in fact it's to their detriment – if patients suffer adverse events on our medicines. So from not only ... hopefully from primarily an ethical standpoint but also from a business standpoint we want to enjoy a good reputation amongst healthcare professionals and patients. And therefore it's
really important that the old cliché, the right medicine to the right patient at the right time in the right dose actually happens.

− **Extract N12**
Speaking from medical and scientific affairs, the aim that we would have ultimately is to ensure that the drug is used for the benefit of patients in the most efficacious and safest manner, and putting the patient at the centre of what we do.

The extracts discussed so far also illustrate two other important features of information behaviour shown in the ISCM: motivating and inhibiting factors. Commercial goals can be seen as motivating factors leading to the production of promotional information, while legal or code of practice requirements and ethical considerations can be seen as inhibiting factors that moderate what is permissible in advertising claims. According to the ISCM, perceptions also play an important role in information behaviour. Several interviewees expressed their perception that the pharmaceutical industry has a generally poor image among health care professionals and the public.

− **Extract B43**
> *One thing that the industry has suffered from, particularly over the last decade is a poor reputation when it comes to credibility and trust. I think this is one area that we need to tackle head on.*

− **Extract F25**
> *I think we're just still seen as big bad people, nasty people – that we're trying to take their money ... high cost drugs.*

− **Extract J71**
> *I feel it [information from the pharmaceutical industry] is quite credible but I think the external perspective is – if you read the general lay press, or when you speak to the healthcare professionals – they feel it's not as credible because there is this perception that companies are not telling the truth.*

− **Extract L41**
> *I still think that a lot of information we produce is always viewed skeptically by the medical profession*

The following extract suggests that this perception of a negative image of the industry is leading to a change in approach to communication:

− **Extract D102**

> *The sales reps model has been shown recently to have failed. It might have worked in the past but the number of sales reps is half what it used to be and there's a good reason for that and that's because doctors don't listen to them because they aren't credible. And also doctors aren't decision makers any more to a degree. So, the provision of scientific information, appropriate information, unspun – warts and all – is what the industry needs to do.*

In the next two quotations, both from the same interviewee, the traditional method of communication by sales representatives using "key messages" is contrasted with a "two-way dialogue" approach in which the representative seeks to provide information relevant to the physician's needs. Such two-way dialogue is represented within the ISCM.

‐ **Extract B24**

Sales representatives were telling doctors what the key messages were for a medicine and those messages would be in effect trying to penetrate a very noisy environment compared to other pharmaceutical companies who would be doing exactly the same. So it was very old school traditional top-down ... producing messages that tell the customer what to do.

‐ **Extract B31**

So instead of simply bombarding or telling customers the key messages it's much more about trying to drive two-way dialogue, to understand specifically how this medicine can support what that individual physician is looking to do.

This change in approach to communication was also reflected in comments from other interviewees:

‐ **Extract C22**

So it's a much more balanced conversation based upon the needs of ... the working needs of the prescriber rather than the selling needs of the pharma rep. That's the conversation that we get really good market research and feedback off of.

‐ **Extract F31**

They [representatives] are expected to be able to hold a reasonably intelligent conversation with their customer these days, whereas in the old days they'd go in with a detail aid and they'd literally quote the detail aid at them. We expect them to be better than that now. For example in our diabetes area we have a course with [a] university that all our representatives are expected to take, in the diabetes arena, so we make sure they actually understand the disease area rather than just going in and selling the drug.

‐ **Extract E54**

So, particularly in secondary care, I think that the value now is not about just selling the key messages and the key information, it is about having a discussion about patient pathways, about service provision, about reimbursement, about formulary access – it's much more a business approach. And integrated into that is why you are there, which is to sell your product.

As suggested by the above extracts, companies' perceptions of physicians' needs have a major influence on the information that they provide and how they communicate it

– **Extract C44**

> *The information that's supplied as part of our sales and marketing efforts is very much guided by our understanding based on research on what doctors' needs are. That is supplemented to varying degrees by the question profiles that come through from Med Info – not as much as I would like it to do but actually monitoring that across the system so the type of questions that are being asked is pretty challenging. If Med Info become aware of a consistent theme, then that is shared through so that we can have proactive communication by the front line on that.*

– **Extract G22**

> *In an ideal world you'd hope that we are meeting the needs of what the scientific community wants to hear about our products. It's probably – with any company that I've worked for – a balance between ... balancing that need and the needs for information and knowledge about our products we would like to be out in the community. So often we do take into account the needs of our customers as well.*

– **Extract N11**

> *They want accurate, balanced information, not promotional information – primary publications, randomized placebo-controlled study standard, the gold standard, as you would expect. The usual grading of what is evidence-based – so basically evidence-based medicine. We know what the gradings are, what's the gold standard. So I think if we asked any of our key opinion leaders, they would rather see a primary published big study that's powered to prove the primary end-point. And robust safety data.*

The analysis of the interviews from the pharmaceutical industry supports the validity of the ISCM's depiction of context, goals, perceptions and motivating and inhibiting factors as key influences on an information provider's behaviour. Further support for the model is provided by the findings from the NICE interviews.

5.1 Discussion and conclusions

The content analyses of the pharmaceutical industry and NICE interview transcripts provide strong support for the validity of the Information Seeking and Communication Model. Not only do they endorse the relevance of the model to these different types of information provider but they also provide further verification, in addition to the evidence reported in Chapter 4, of its relevance to physicians as information users. The findings demonstrate that the information behaviour of providers mirrors that of users as depicted in Figure 28. They substantiate the fundamental importance of context and related factors in the information behaviour of both providers and users.

These affect needs, wants, goals, perceptions and motivating and inhibiting factors, and the resulting information seeking, information assessment and use, communications, decisions and actions. The findings highlight differences and similarities between the pharmaceutical industry and NICE as information providers. Companies have a commercial goal: "we want to sell our drugs" (extract F101); whereas NICE aims to be the source of the "highest possible quality" information for health care professionals (extract R32). Both, however, seek to influence the clinical behaviour of physicians. A pharmaceutical company wants to "drive appropriate uptake" of the company's medicines (extract B11) and NICE wants physicians to "follow the

recommendations" that it issues (Extract Q22). The behaviour of pharmaceutical companies is influenced not only by their own commercial environment but also by requirements from the wider environment notably legislation and the industry's code of practice: "We in the industry have the ABPI Code, which we must adhere

to" (extract N71). NICE is guided by its remit from the Department of Health: "We're more the servants of the Department of Health I suppose than we are of the doctors and practitioners who use our guidance" (extract R42). Both the pharmaceutical industry and NICE perceive the information that they produce to be credible but they also recognize that physicians' perceptions may be different. An industry interviewee commented: "I feel it [information from the pharmaceutical industry] is quite credible but I think the external perspective ... when you speak to the healthcare professionals – they feel it's not as credible because there is this perception that companies are not telling the truth" (extract J71). In the case of NICE, perceived credibility is not a problem but the relevance or utility of its information may be: "I think we're quite often perceived as doing things in an overly academic ivory tower type of way and what we do isn't necessarily tailored to a more generalist audience" (extract T31).

The model is not intended to give a detailed representation of every aspect of information behaviour. It does not, for example, describe exactly how a user assesses and processes information or how a provider produces information products. As with other models, the aim of the ISCM is to highlight important elements of the process being modelled and the factors affecting them. It is hoped that by drawing attention to the features of information behaviour it will have practical value in helping users and providers to review and improve how they seek, use and communicate information. By understanding the importance of the utility as well as the credibility of its information products and making them easier to access and use, NICE is improving the way in which it meets health care professionals'needs. Conversely pharmaceutical companies recognize the

importance of improving their perceived credibility and arechanging the way in which they communicate with physicians.

By endorsing the validity of the ISCM this research also provides support for the models described in part 1. This is a significant new finding because it demonstrates the practical relevance of key elements of these models in environments (health care and the pharmaceutical industry) that are different from those in which most of the models were developed. A further highly important aspect of the research is that the new model has been developed by building on previous work. It thus answers the criticism (Case, 2002, page 284; Wilson, T.D., 1999) that research in LIS fails to build on existing theory. In addition it takes a novel approach in using existing theory not only from library and information science but also from communication studies. As a result the ISCM is more comprehensive in scope than most other models, covering as it does the information user, information seeking and use, the information provider and communication.

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