

## Review

## Providing recording of clinical consultation to patients – A highly valued but underutilized intervention: A scoping review



Maka Tsulukidze<sup>a</sup>, Marie-Anne Durand<sup>b</sup>, Paul J. Barr<sup>a</sup>, Thomas Mead<sup>c</sup>, Glyn Elwyn<sup>a,d,\*</sup>

<sup>a</sup>The Dartmouth Center for Health Care Delivery Science, Dartmouth College, USA

<sup>b</sup>Department of Psychology, University of Hertfordshire, UK

<sup>c</sup>Biomedical Libraries, Dartmouth College, USA

<sup>d</sup>The Cochrane Institute for Primary Care and Public Health, Cardiff University, UK

## ARTICLE INFO

*Article history:*

Received 3 October 2013

Received in revised form 9 February 2014

Accepted 23 February 2014

*Keywords:*

Providing recordings to patients

Audiotaped clinical consultation

## ABSTRACT

**Objective:** The benefits of providing patients with recorded clinical consultations have been mostly investigated in oncology settings, generally demonstrating positive outcomes. There has been limited synthesis of evidence about the practice in wider context. Our aim was to summarize, in a scoping review, the evidence about providing consultation recordings to patients.

**Methods:** We searched seven literature databases. Full text articles meeting the inclusion criteria were retrieved and reviewed. Arksey and O'Malley's framework for scoping studies guided the review process and thematic analysis was undertaken to synthesize extracted data.

**Results:** Of 5492 abstracts, 33 studies met the inclusion criteria. Between 53.6% and 100% (72% weighted average) of patients listened to recorded consultations. In 60% of reviewed studies patients shared the audio-recordings with others. Six themes identified in the study provided evidence for enhanced information recall and understanding by patients, and positive reactions to receiving recorded consultations. There has been limited investigation into the views of providers and organizations. Medico-legal concerns have been reported.

**Conclusion:** Patients place a high value on receiving audio-recordings of clinical consultations and majority benefit from listening to consultation recordings.

**Practice implications:** Further investigation of the ethical, practical and medico-legal implications of routinely providing recorded consultations is needed.

© 2014 Elsevier Ireland Ltd. All rights reserved.

## Contents

|  |     |
|--|-----|
| 1. Introduction . . . . .  | 298 |
| 2. Methods . . . . .   | 298 |
| 2.1. Specifying the research question . . . . .                                    | 298 |
| 2.2. Identifying relevant literature . . . . .                                     | 298 |
| 2.3. Selecting the literature . . . . .  | 298 |
| 2.4. Charting and collating the data . . . . .                                     | 299 |
| 2.5. Summarizing the data . . . . .  | 299 |
| 3. Results . . . . .   | 299 |
| 3.1. Theme 1: Use of recordings by patients . . . . .                              | 299 |
| 3.2. Theme 2: Impact on information recall and understanding . . . . .             | 299 |
| 3.3. Theme 3: Patient acceptance of recordings of clinical consultations . . . . . | 301 |
| 3.4. Theme 4: Benefits for specific patient populations . . . . .                  | 301 |
| 3.5. Theme 5: Provider divergence . . . . .  | 302 |

\* Corresponding author at: The Dartmouth Center for Health Care Delivery Science, Dartmouth College, Hanover, NH 03755, USA. Tel.: +1 603 646 2295; fax: +1 603 646 1269.

E-mail address: [glynelwyn@gmail.com](mailto:glynelwyn@gmail.com) (G. Elwyn).

|  |     |
|--|-----|
| 3.6. Theme 6: Organizational factors ..... | 302 |
| 4. Discussion and conclusion .....         | 303 |
| 4.1. Discussion .....                      | 303 |
| 4.2. Conclusion .....                      | 303 |
| 4.3. Practice implications .....           | 303 |
| Acknowledgements .....                     | 304 |
| References .....                           | 304 |

## 1. Introduction

One of the earliest suggestions that patients might benefit by the provision of audio-recordings of clinical consultations to patients was by Hugh Butt in 1977. He noted the possibility that the method could lead to a “better physician-patient communication” [1]. Since the late 1970s onwards, there have been studies of this process of giving recordings to patients, although none have been comprehensive in terms of their scope.

Existing specialty-focused studies have noted the benefits of providing recordings of clinical consultations to patients. These include better information recall by patients [2,3], and the view that having access to recordings support them when they wish to discuss their condition with family and friends [4,5]. Patients also report clearer understanding of treatment options [4,6] and more active engagement in treatment decisions [6,7]. Studies also mention the problems encountered when undertaking these efforts. Explaining the presence of a recording device disrupts the normal flow of the clinic, consent is required, and technical problems arise, especially when the technology was much more cumbersome than current digital recording devices.

However, previous reviews have focused on specific clinical areas, namely, oncology [8–11] and pediatrics [12]. We considered it important to get an overview. Perhaps there is added advantage to the sharing of recordings, but more relevant in clinical specialties where emotional reactions might interfere strongly with cognitive processing of information. The focus on oncology would be explained by this concern, for instance, as patients find themselves unable to process information when they are given the diagnosis of cancer. Perhaps surgical specialties would find it helpful if patients were able to re-listen to their explanations of complex procedures, thus ensuring improved consent processes. We therefore wanted to examine all studies that had provided patients with audio-recordings in order to assess the relevance of these potential mediators.

We wanted to understand how the studies had chosen to assess their impact. Some reviews examined specific outcomes such as the value of audio-recordings for health literacy [13], recall of medical advice [14], and participant recruitment rates and strategies [15]. In contrast, a recent review [16] categorized the outcome measures used by the studies into three major groups: (1) information access, use and understanding (e.g. information recall); (2) experience of health care (e.g. satisfaction); (3) health and well-being (e.g. psychological health status). Our intention was to comprehensively describe the evaluations and provide a logical framework for future studies.

We observed that to date, no studies had synthesized evidence about providing recordings of clinical consultations to patients, across all clinical specialties, although, in our view, there remains the potential of identifying important shared experiences among patients, providers and organizations. We feel these issues are of particular relevance, given the increasing ease by which digital recording can now occur, either initiated by patients using their smartphones, or by organizations, as they become more aware of the benefit of having an archive of clinical interactions.

The aim of this scoping review was to evaluate the current state of knowledge about providing recorded clinical consultations to patients, investigate how patients use the recordings, summarize the evidence of the benefits and risks associated with this practice, as well as the barriers and facilitators for future implementation in day-to-day practice settings.

## 2. Methods

According to the framework for scoping studies by Arksey and O'Malley [17] the following steps were undertaken: 1) specifying the research question; 2) identifying relevant literature; 3) selecting the literature; 4) charting the data; and 5) collating, summarizing and reporting the results. Each step is outlined in more detail below. Scoping studies aim to rapidly map the key concepts underpinning a research area and the main sources and types of evidence available [17].

### 2.1. Specifying the research question

Audio- and video-recordings of clinical consultations have been widely used for the purpose of analyzing provider–patient interactions. We were only interested in studies that provided a recording of the clinical consultation to the patient. Therefore, the first step in our review was to develop a scoping question that would narrow our search to studies that had evaluated the practice of providing recordings of clinical consultations to patients. In addition, we decided to include studies that focused on real clinical consultations, and examined benefits, risks and potential harms associated with the provision of recorded consultations to patients as well as perceived barriers and facilitators.

### 2.2. Identifying relevant literature

We searched the following databases from inception until December 2012: Medline, EMBASE, CINAHL, PsycInfo, OpenSIGLE, NHS Economic Evaluation, and the Web of Science. The reference lists of all primary and review articles were hand searched. Only English-language articles were considered for this review. Although it is recommended practice for scoping reviews, we did not include gray literature, as we decided to evaluate robust empirical evidence from peer-reviewed studies. Appendix 1 provides the Ovid MEDLINE search strategy, which was adapted for use in other databases. MeSH-terms and text-words for recordings (tape, audio, video, digital), consultations (office visits) and patient were combined to perform the search.

### 2.3. Selecting the literature

To be included, studies had to meet the following criteria: (1) examine empirical data about the provision of recordings of clinical patient-provider consultations to patients; (2) be published in a peer-reviewed journal. Two researchers (MT, MAD) independently screened the titles and abstracts of the retrieved records. Disagreements about study inclusion were resolved by discussion.

## 2.4. Charting and collating the data

A data extraction table was created and piloted by two researchers (MT, MAD) using four selected studies each. Studies were selected to reflect different designs, time of publication and clinical area. Data extraction fields in the pilot table were modified based on discussion. Details of study design, patient samples, publication information, and data relating to the outcomes of interest were extracted from included papers.

## 2.5. Summarizing the data

The extracted data were summarized (MT) using the Lancaster University Guidance on the Conduct of Narrative Synthesis in Systematic Reviews [18]. Although usually used with qualitative data, thematic analysis is useful with studies involving quantitative data or data from mixed method studies to organize and summarize the findings from large, diverse bodies of research [18]. Variable labels included in the studies were extracted as ‘themes’ in the same way as conceptual themes are extracted from qualitative research [18]. Then we collated and developed descriptions that best characterized the findings of the included studies.

The following steps were undertaken to perform the thematic analysis:

*Identify groupings and clusters* – studies were organized by outcomes as primary cluster. Study design, country where research was conducted and clinical areas were identified as secondary clusters based on the characteristics in the data-extraction table.

*Transforming data* – if data were not available, for example proportion of patients who listened to audio-recordings or shared recording with others, percentages were calculated by using reported absolute numbers; weighted averages were also calculated and reported.

*Tabulation* – data were presented in text and tables. Text was used for descriptions of themes while tables highlighted study characteristics and primary outcomes.

*Reflecting critically on the synthesis process* – after identifying the main, recurrent and/or most important themes and/or concepts across included studies, substantial themes were identified on an inductive basis by collating and reviewing the extracted data. In addition, this step involved extensive discussion of the themes with the research team. Specific studies were reviewed at the group meetings and themes were refined and categorized as needed. Disagreements were resolved through collective discussion and obtaining consensus.

## 3. Results

The search identified 5492 records. After removing duplicates and excluding irrelevant articles, 85 full-text articles were retrieved for detailed examination and 32 studies were included in the final review. One more study identified during the peer review process met inclusion criteria, and was added to the included papers thus increasing the number of reviewed studies to 33. Characteristics of 53 excluded studies with a reason for exclusion are given in the study flow chart (Fig. 1). The list of the excluded studies is available upon request.

Of the 33 studies included, 18 used a randomized controlled trial (RCT) design, 14 were observational, and one was a qualitative study with randomized design. There was considerable heterogeneity in terms of methods, participants, and measurement of outcomes.

Study dates ranged from 1980s to 2013, with fourteen studies (42%) conducted in UK, seven (21%) studies in Australia, seven (21%) in Canada, three (9%) in the USA and two (6%) in the

Netherlands (Table 1). In all included studies, consultations were audio-recorded and shared with patients; the use of video recordings was not reported in any of the included studies. Most studies examined patient perspectives; only three focused exclusively on provider perspectives [19–21]. One study surveyed doctors as part of their analysis [22], five studies included provider perspectives [6,23–26], one attorneys’ perspectives [27], and five [6,19,20] [23,27] organizational perspectives. Oncology was the most commonly studied specialty, with 25 (76%) studies, followed by pediatrics [24,28,29], cardiac surgery [30,31], orthopedic surgery [27], prenatal care [32] and primary care [25] (Table 1). Typically, patients who received audio-recordings of the their consultation would be asked to listen to the recording at home at their convenience.

We identified six substantive themes: (1) use of recordings by patients, (2) impact on information recall and understanding, (3) patient acceptance of recordings of clinical consultations, (4) benefits for specific patient populations; (5) provider divergence, and (6) organizational factors. Table 2 summarizes major themes and they are described in detail below.

### 3.1. Theme 1: Use of recordings by patients

The vast majority of patients, between 53.6% and 100% (71.63% weighted average), listened to their recorded consultations. Twenty studies (60%) also reported that patients shared the recordings with others (68.22% weighted average of patients), most often their family members, [2–4,25,27,28,36,41] and friends [3,22,33]. Some of them also shared it with their healthcare providers [2,3,23,26,27,33,42]. Patients listened to the recording multiple times, from two to as many as 50 times [24] (Table 1).

The most frequently mentioned reasons patients gave for not listening to the recording were feeling upset by the information and unable to face hearing the diagnosis again (25% of studies,  $n = 8$ ) [3,23,30,33,36,41,42,46], feeling that the information given at the appointment was sufficient and that they did not need the recording (28% of studies,  $n = 9$ ) [3,7,23,25,27,33,36,42,46], and technical failure (12% of studies,  $n = 4$ ) [25,27,40,42]. However, patients who reported being upset by listening to the recording still found the recording useful for themselves [2,26,41] or for their family members [41].

### 3.2. Theme 2: Impact on information recall and understanding

Overall, 26 studies (79%) reported impact on information recall and understanding (Table 2). Twenty-two studies found audio-recordings to have a positive impact on patient recall and understanding, while only four studies [22,32,36,45] found no differential benefit or statistically significant effect on information recall. Various methods were used in the studies to assess levels of information recall and patient understanding, e.g. face to face or telephone interview [28].

In controlled studies ( $n = 8$ ), those who received audio-recorded consultations reported greater information recall compared to the control group [2,3,6,26,28,34,39,45]. More patients in the control group requested information already provided in their first consultation suggesting that “tape-patients” retained more information compared to “no-tape” patients [6]. In a double blind randomized controlled trial, patients who received an audio-recording of the consultation reported receiving significantly more disease and treatment information and more information about treatment alternatives and side effects than patients who did not receive a recording [39]. Patients provided with the recording were also able to recall significantly more information discussed during the consultation than those in the control group (except for trial procedure and chemotherapy where no significant differences

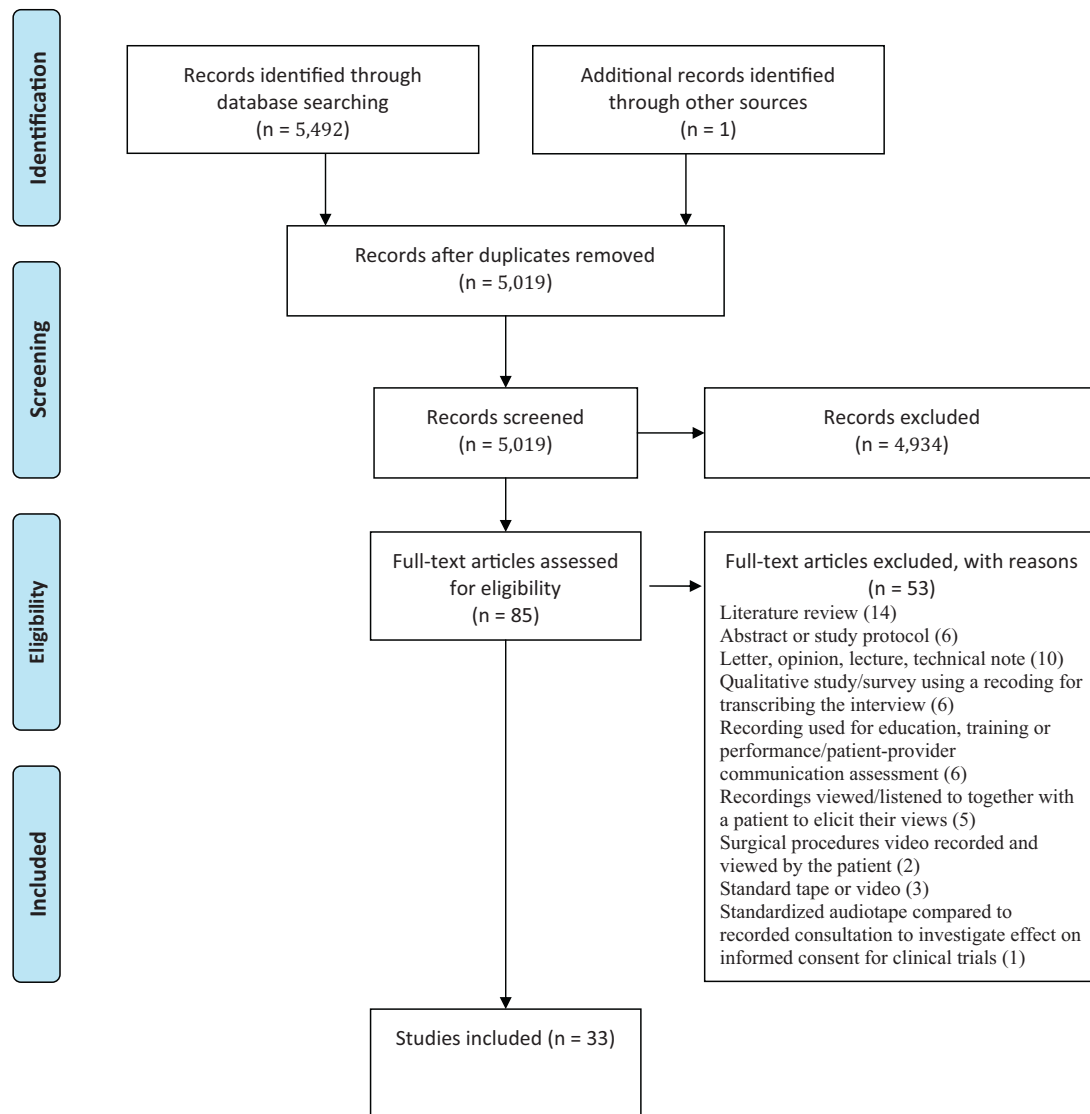


Fig. 1. Flowchart of studies from identification to inclusion.

were found) [3]. Further, the tape group recalled more information at two follow-up assessments, a finding also supported by another study [26] indicating that while there were no significant differences at the first assessment, at the second interview the audio-recording group recalled significantly more information concerning their illness, treatment etiology, options, implications and prognosis. Patients also demonstrated improvement in recall of information if given an audio-recording of a consultation in addition to the written recommendations [34].

Studies without control groups corroborated the above findings: audio-recordings helped patients retain clinical information, allowed clearer understanding of treatment options, implications, outcome and prognosis [4,5,23,27,29,33,37,41,42,44,46]. For example, adult patients with ocular malignancy found that the audio-recording of their consultation helped them understand their condition, treatment, and side effects [33]. Examining consultations that delivered 'bad news', it was found that although traumatic to the patient, the "tape" group scored an increase over the "no-tape" group in understanding the information [41]. Patients who received recordings also reported hearing "new"

information not heard in the initial interview [4] or information they had forgotten [41,46].

Patients also felt the audio-recording added to their understanding of treatment alternatives and side effects [4,38,42]. In addition, based on the information heard in the recording, patients were reminded of details needing further clarification due to lack of understanding during emotionally charged consultations [6].

While almost all studies identified information recall as a major benefit and suggested that audio-recording consultations may have a role in improving the quality of information given to patients, contradictory findings [22,32,36,45] were also reported. Although patients preferred audio-recording to the summary letter of the consultation, no significant difference was found between the audio-recording and letter groups for information recall [22], consultation recording did not improve recall although patients preferred the recording [45] and no significant difference was found for any of the outcome variables including information recall for patients in the intervention group [32]. Provision of recording after the genetic counseling session had a detrimental effect on women's ability to process information concerning their risk of

**Table 1**  
Summary of study characteristics and selected findings.

| Year of publication, Author               | Study design, sample (N) | Country     | Patients listened (%) | Patients shared recording (%) | Number of times patients listened <sup>b</sup> | Perceptions |           |
|---|--------------------------|-------------|-----------------------|-------------------------------|--|-------------|-----------|
|   |                          |             |                       |                               |  | Patients    | Providers |
| <b>Oncology</b>                           |                          |             |                       |                               |  |             |           |
|   | <b>RCT</b>               |             |                       |                               |  |             |           |
| 1992, North                               | 34                       | UK          | 100                   | –                             | Mean 4   | Positive    | –         |
| 1993, Dunn                                | 92                       | Australia   | –                     | –                             | Mean 2, range 0–9                              | Positive    | –         |
| 1994, Tattersall                          | 182                      | Australia   | 99                    | 64                            | Mean 2.8, range 0–20                           | Positive    | –         |
| 1995, Ford                                | 89                       | UK          | 83                    | –                             | ≥1   | –           | –         |
| 1995, McHugh                              | 117                      | UK          | 79                    | 54                            | ≥1   | Positive    | –         |
| 1997, Davison                             | 60                       | Canada      | 92                    | 50                            | Range 1–4                                      | –           | –         |
| 1999, Bruera                              | 60                       | Canada      | 89                    | 72                            | Median 2                                       | Positive    | –         |
| 1999, Hack                                | 36                       | Canada      | 83                    | –                             | ≥1   | Positive    | –         |
| 2000, Ong                                 | 201                      | Netherlands | 75                    | 80                            | Mean 2.2                                       | Positive    | –         |
| 2002, Lobb                                | 195                      | Australia   | 50                    | 20                            | 1–3+   | Positive    | –         |
| 2003, Hack                                | 323                      | Canada      | 60.7                  | 41.5                          | Mean 2.2                                       | Positive    | –         |
| 2007, Hack                                | 429                      | Canada      | 65.4                  | 57.4                          | Mean 2.8                                       | Positive    | –         |
| 2008, Stephens                            | 58                       | UK          | 93                    | 93                            | Median 1, range 0–10                           | Positive    | –         |
| 2012, Uitdehaag                           | 21                       | Netherlands | 80                    | 100                           | –  | Positive    | –         |
| <b>Observational</b>                      |                          |             |                       |                               |  |             |           |
| 1989, Hogbin                              | 46                       | UK          | 95                    | 97                            | –  | Positive    | –         |
| 1991, Johnson                             | 29                       | USA         | 96                    | 81                            | Range 4–10                                     | Mixed       | –         |
| 1992, Deutsch                             | 76                       | UK          | 96                    | –                             | Range 1–12                                     | Positive    | –         |
| 1993, Stockler                            | 194                      | Australia   | –                     | –                             | –  | –           | Mixed     |
| 1998, Ah-Fat                              | 91                       | UK          | 91                    | 86                            | Mean 2.7, Range 1–6                            | Positive    | –         |
| 1999, McConnell                           | 156                      | Australia   | –                     | –                             | –  | –           | Mixed     |
| 2002, Knox                                | 52                       | Australia   | 70                    | 69                            | ≥1   | Positive    | –         |
| 2003, Bowden                              | 50                       | UK          | 90                    | –                             | –  | Positive    | –         |
| 2005, Haslop                              | 57                       | Canada      | 70                    | 60                            | –  | Positive    | –         |
| 2008, Belkora                             | 37                       | USA         | –                     | –                             | –  | –           | Positive  |
| 2013, Hack                                | 228                      | Canada      | 68.9                  | 58.6                          | Mean 2.0 (max = 8)                             | Positive    | –         |
| <b>Pediatrics</b>                         |                          |             |                       |                               |  |             |           |
|   | <b>RCT</b>               |             |                       |                               |  |             |           |
| 2007, Koh                                 | 200                      | Australia   | 91                    | 71 <sup>a</sup>               | Range 1–10                                     | Positive    | –         |
|   | <b>Observational</b>     |             |                       |                               |  |             |           |
| 1992, Rylance                             | 289                      | UK          | 70                    | –                             | ≥1   | Positive    | –         |
| 1993, Eden                                | 14                       | UK          | 92                    | 64                            | Range 1–50                                     | Positive    | –         |
| <b>Cardiac surgery</b>                    |                          |             |                       |                               |  |             |           |
|   | <b>RCT</b>               |             |                       |                               |  |             |           |
| 2010, Mishra                              | 84                       | UK          | 100                   | –                             | –  | –           | –         |
|   | <b>Qualitative</b>       |             |                       |                               |  |             |           |
| 2005, Leahy                               | 19                       | UK          | 80                    | –                             | –  | Positive    | –         |
| <b>Orthopedic surgery</b>                 |                          |             |                       |                               |  |             |           |
|   | <b>Observational</b>     |             |                       |                               |  |             |           |
| 2001, Krackow                             | 70                       | USA         | 62.5                  | 70                            | Mean 2.1                                       | Positive    | –         |
| <b>Prenatal care</b>                      |                          |             |                       |                               |  |             |           |
|   | <b>RCT</b>               |             |                       |                               |  |             |           |
| 2003, Cope                                | 117                      | UK          | 54                    | –                             | –  | Positive    | –         |
| <b>General practice [family medicine]</b> |                          |             |                       |                               |  |             |           |
|   | <b>RCT</b>               |             |                       |                               |  |             |           |
| 2004, Liddell                             | 180                      | UK          | 61                    | 48                            | Mean 1.5                                       | Positive    | –         |

–Data not available.

<sup>a</sup> Sum of 49% (partners), 7% (grandparents), 1% (relatives or friends), 14%.<sup>b</sup> As reported in the original papers. Means, median and range were not available in 6 studies.

breast cancer [36] although no apparent explanation was given for the negative impact on information recall.

### 3.3. Theme 3: Patient acceptance of recordings of clinical consultations

Twenty-six studies (79%), of which 15 were RCTs, reported that patients were positive about the concept of receiving recorded consultations and some felt that taping the consultations should be a common practice [29]; only one study reported mixed perceptions [4] (Table 1).

Recording also helped patients in adjusting emotionally and psychologically to their illness and reducing fears and anxieties [33]. Moreover, studies examining the views of patients in a

control group reported that most patients without a recording felt they had missed out on an opportunity to improve their information experience and felt a sense of loss [30,35].

Patients found doctors' willingness to go on the record impressive [27] and thought that medical staff would benefit and learn from the audio-recording [37]. They also expressed the desire to have other consultations recorded and would recommend the practice to others [23,44].

### 3.4. Theme 4: Benefits for specific patient populations

Four RCTs examined the benefits for specific populations and found that patients were most likely to benefit if they were of older age [3], felt overwhelmed during emotionally charged consultations



**Table 2**  
Major themes and key findings across the themes.

| Theme   | Key findings <sup>a</sup>   | References                          |
|---|---|-------------------------------------|
| 1. Use of recordings by patients                              | - 72% (weighted average) listened to the audio-recorded consultation<br>- 68% (weighted average) shared recording with family, friends and doctors<br>- Audio-recordings were listened to 2–50 times  | [2–7,22–42,43,44]                   |
| 2. Impact on information recall and understanding             | - 22 studies (67%) reported improved information recall and understanding out of 25 measuring the impact on recall and understanding<br>- Audio-recordings helped with recall of information on disease and treatment, side effects, implication, prognosis and available options<br>- Patients heard “new” and forgotten information | [2–6,22,23,25–29,31–39,41,42,44,45] |
| 3. Patient acceptance of recordings of clinical consultations | - 26 studies (79%) of studies reported positive patient perceptions (e.g. helped in adjusting emotionally and psychologically to their illness)<br>- Some patients expressed desire to have more consultations audio-recorded<br>- Some would recommend to others   | [2,3,5,22–30,32–45]                 |
| 4. Benefits for specific patient population                   | - Patients with lower SES, older age, impaired abilities and overwhelmed with stress may benefit more   | [2,3,22,36]                         |
| 5. Provider divergence  | - Impact of clinical specialization on provider perceptions mixed<br>- Concerns about free flow of consultation, patient confidentiality  | [19–26]                             |
| 6. Organizational factors                                     | - Time requirements and workflow disruption most frequently discussed<br>- Medico-legal aspects not sufficiently investigated   | [6,19,20,23,27,44]                  |

<sup>a</sup> Results which are not quantified are drawn from qualitative studies or thematic analysis.

[22,36], had lower socio-economic status (SES) [2] and impaired abilities (e.g. deafness) [22].

### 3.5. Theme 5: Provider divergence

Three out of 32 studies investigated staff perceptions about sharing recordings of clinical consultations with patients [19–21], while five studies made brief references to this issue [23–26], all of them suggesting that providers held opposing views, categorized by clinical area.

Evidence about the impact of providers' specialties on their perception of sharing audio-recorded consultations was mixed [20,21,23]. Two studies showed that specialists, mostly oncologists, tended to be more in favor of this approach, while the majority of surgeons and general practitioners (family doctors) were opposed to this practice [20,23]. Physicians (both, family doctors and specialists) who were in favor of recording the consultation had fewer years of experience than those against this practice [20]. In another study, when family doctors actually listened to their patients' recordings, they found it helpful to know precisely what the patient had been told at their consultation [26]. Specialist surgeons, physicians and radiotherapists were more skeptical than family doctors about the benefits of the recordings [21]. Differing views were also reported among the same specialty providers, namely oncologists, their primary nurses and administrative personnel [44], which was explained by lack of empirical evidence or unfamiliarity with the existing evidence.

Physicians opposing the idea cited the intrusive nature of audiotaping the consultation and felt that it would inhibit free flow of the consultation and open discussion [20]. The potential risk of breaching patient confidentiality was also reported, especially when the information was shared to a wider audience [20,24]. It was suggested that patients may need to be briefed about the potential risks of sharing the recording with others [25].

As part of a randomized trial, where patients were provided with an audio-recording or an individualized summary letter of

their first consultation with a medical oncologist, 194 oncologists were surveyed concerning their views about two methods [22]. Sixty-one percent of respondents felt that providing patients with a recording of their initial cancer consultation would be beneficial. Thirty-six percent were concerned about the risks associated with giving patients such a record, and only 13% considered these risks prohibitive.

### 3.6. Theme 6: Organizational factors

Six studies [6,19,20,23,27,44], examined institutional and organizational factors associated with the provision of recorded clinical consultations to patients. The extra time required and possible disruptions of clinical workflow were discussed most frequently. However, audio-recording was not found to substantially extend the consultation time [23]. Moreover it was estimated that an additional 62 calls every six months were averted as a result of 88% of patients being able to find answers to their questions in the audio-recording, for which they otherwise would have called the office [27]. One study also cites comments by nurses and patients about fewer phone calls after receiving consultation recording by patients [44]. However, in another study, conducted at a breast care center, the practice of consultation audio-recording occasionally disrupted clinic processes and caused delays [19]. Although not extensively investigated, technical difficulties were also noted, including background noise, poor quality recording equipment, and missing recordings [23].

The most extensive examination of organizational factors was provided in the implementation study by Hack et al. [44]. Out of eight factors identified as fundamental components for implementing consultation recording, six were directly related to administrative, financial and social resources at the organization, which we have summarized in the following four categories: (1) identifying a local champion, (2) obtaining administrative support and administrative commitment of financial resources, (3) allocation of staff to logistically manage the recording of

consultations including notifying the patients and managing the devices, and (4) providing organizational clarity about medico-legal aspects of recording consultations.

Investigation of the medico-legal aspect was limited and there was no consensus among the doctors: one group thought that audiotaping would provide an effective medico-legal defense but other doctors in the same study viewed the practice as 'risky' [20]. In contrast, the response from all six attorneys interviewed by Krackow et al. [27] was positive and perceived no increased risk of malpractice.

#### 4. Discussion and conclusion

##### 4.1. Discussion

Six substantive themes identified in this study indicate that there is evidence of high use (sharing and listening) of recorded consultations, improved patient recall and understanding of information discussed during the consultation and positive perceptions of receiving audio-recordings expressed by patients and some patient populations may have greater benefits. Provider and organizational views were less extensively investigated. There is evidence of mixed perceptions among providers and concerns about time and disruptions to workflows.

This scoping review adds further support to previous research indicating that the majority of patients benefit from receiving consultation recordings [10,11,22,47,48]. A systematic review examining interventions for improving recall of medical information concluded that not only do consultation audio-recordings significantly enhance recall as compared to orally delivered information, but these benefits are not achieved when standardized information audio-recordings are used [48]. This review also suggests that patient perceptions and satisfaction with recordings are the focus of a vast majority of the studies and provider and organizational views are understudied. Clinicians' views regarding the benefits, value and risks involved with the practice provide evidence of mixed perceptions. However, when patients share audio-recordings with their doctors', high acceptance and realization of benefits are noted. This may suggest that fear of litigation inhibits recognition of benefits when providers are directly involved.

Despite approximately 30 years of evidence consistently demonstrating the benefits of the practice, oncology remains the predominant clinical area in which consultation recordings have been provided to patients. Improved information recall, understanding of information and positive perceptions were evident across all specialties in the studies included in this review.

A surprising finding has been the representativeness of the countries where research has been conducted. The UK and US are on the highest and lowest end of the spectrum, with 44% and 9% of the studies conducted in these countries respectively. This may be an indirect indicator of the fear of litigation and other cultural differences facilitating or hindering the research and adoption of the practice.

Studies included in this review range from the 1980s to 2013. Despite differences in the medico-legal landscape and advances in the technology, the key themes remained consistent across time. Differences were noted with respect to more robust study design and outcome measures, e.g. the impact of audio-recordings on informed decision making, in newer studies. However, assessment of these characteristics is beyond the scope of this review.

Considerable heterogeneity in outcome measures makes evidence synthesis a challenge. For example, lack of consistency among the studies with regard to definition and aspects of information recall was notable. Information patients were asked to recall is rarely defined in the studies, the importance of the

information tested for recall is often not assessed from either the providers' or patients' perspective, and potential sources of poor understanding of clinical information (e.g. technical language, patient anxiety, lack of time) are not controlled for.

The main strength of this review is that it has synthesized the evidence using a broad range of studies and included all clinical areas where recordings of clinical consultations were provided to patients and helped to identify major research gaps and future research directions.

Inclusion of only English language studies is a limitation. However, examination of studies from five countries, with different health systems, identified consistent themes. In addition, thematic analysis was conducted by only one researcher (MT). This limitation was addressed through discussing findings extensively among the research team.

Synthesis of evidence in this study has identified and confirmed several major research gaps. Drawing from this knowledge we wish to recommend the following future research directions: (1) a wider set of clinical areas should be examined to study the benefits for patients outside of oncology settings; (2) provider and organizational views and factors must be examined extensively. In this context, medico-legal aspects require special attention especially in the context of health systems where litigious tendencies seem to inhibit the implementation. The research in this area should also address the issues of information ownership, data storage, privacy concerns and whether or not a copy of the recording needs to be retained by providers [44]; (3) outcome measures need to be standardized to enable systematic synthesis of knowledge, new measures e.g. impact of the practice on informed decision making, survival and physical health should be included routinely; (4) individual differences in patient characteristics need to be investigated to help with targeting patient groups for the provision of recordings, including those with initial poor prognoses, communication barriers and other disadvantageous circumstances.

##### 4.2. Conclusion

Despite many reported benefits implementation of routine provision of recorded consultations to patients is understudied. A better understanding of the barriers and facilitators as well as the ethical and practical implications is needed to investigate the ways of maximizing the benefits for patients.

##### 4.3. Practice implications

While the evidence of benefit to the patient is clear, there is still a dearth in the research from the provider and organizational perspectives. Current scientific and policy debates on increased involvement of patients in clinical decision making warrants further investigation of the feasibility and acceptability of a wide adoption of the practice. Moreover, the arrival of smart phones with digital recording ability has led to patients recording their own consultations, sometimes covertly. The need to assess the contribution of providing recordings to patients has become more urgent and relevant to clinical practice.

#### Competing interests

All authors declare they have no competing interests.

#### Funding

This work was supported by the Dartmouth Center for Health Care Delivery Science.

## Acknowledgements

We acknowledge technical help and support of Aileen K. Lem. Thanks also to Stuart Grande, Thomas Walsh and Rachel Thompson for contributions and comments.

## Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.pec.2014.02.007>.

## References

- Butt HR. A method for better physician–patient communication. *Ann Intern Med* 1977;86:478–80.
- Stephens MR, Gaskell AL, Gent C, Pellard S, Day-Thompson R, Blackshaw GRJC, et al. Prospective randomised clinical trial of providing patients with audiotape recordings of their oesophagogastric cancer consultations. *Patient Educ Couns* 2008;72:218–22.
- Ong LML, Visser MRM, Lammes FB, Kuenen BC, de Haes JCJM, van Der Velden J. Effect of providing cancer patients with the audiotaped initial consultation on satisfaction, recall, and quality of life: a randomized, double-blind study. *J Clin Oncol* 2000;18:3052–60.
- Johnson IA, Adelstein DJ. The use of recorded interviews to enhance physician–patient communication. *J Cancer Educ* 1991;6:99–102.
- McHugh P, Lewis S, Ford S, Newlands E, Rustin G, Coombes C, et al. The efficacy of audiotapes in promoting psychological well-being in cancer patients: a randomised, controlled trial. *Br J Cancer* 1995;71:388–92.
- Ford S, Fallowfield L, Hall A, Lewis S. The influence of audiotapes on patient participation in the cancer consultation. *Eur J Cancer* 1995;31A:2264–9.
- Davison BJ, Degner LF. Empowerment of men newly diagnosed with prostate cancer. *Cancer Nurs* 1997;20:187–96.
- Scott JT, Entwistle VA, Sowden AJ, Watt I. Giving tape recordings or written summaries of consultations to people with cancer: a systematic review. *Health Expect* 2001;4:162–9.
- McPherson CJ, Higginson IJ, Hearn J. Effective methods of giving information in cancer: a systematic literature review of randomized controlled trials. *J Public Health Med* 2001;23:227–34.
- McClement SE, Hack TF. Audio–taping the oncology treatment consultation: a literature review. *Patient Educ Couns* 1999;36:229–38.
- Scott JT, Harmsen M, Pricor MJ, Entwistle VA, Sowden AJ, Watt I. Recordings or summaries of consultations for people with cancer. *Cochrane Database Syst Rev* 2008;CD001539.
- Koh G, Budge D, Butow PN, Renison B, Woodgate PG. Audio recordings of consultations with doctors for parents of critically sick babies. *Cochrane Database Syst Rev* 2005;1:CD004502.
- Santo A, Laizner AM, Shohet L. Exploring the value of audiotapes for health literacy: a systematic review. *Patient Educ Couns* 2005;58:235–43.
- Watson PWB, McKinstry B. A systematic review of interventions to improve recall of medical advice in healthcare consultations. *J R Soc Med* 2009;102:235–43.
- Themessl-Huber M, Humphris G, Dowell J, Macgillivray S, Rushmer R, Williams B. Audio-visual recording of patient-GP consultations for research purposes: a literature review on recruiting rates and strategies. *Patient Educ Couns* 2008;71:157–68.
- Pitkethly M, Macgillivray S, Ryan R. Recordings or summaries of consultations for people with cancer. *Cochrane Database Syst Rev* 2008;CD001539.
- Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005;8:19–32.
- Popay J, Roberts H, Snowden A, Petticrew M, Arai L, Britten N, et al. Guidance on the conduct of narrative synthesis in systematic reviews: final report. Swindon: ESRC Research Methods Programme; 2006.
- Belkora JK, Loth MK, Chen DF, Chen JY, Volz S, Esserman LJ. Monitoring the implementation of consultation planning, recording, and summarizing in a breast care center. *Patient Educ Couns* 2008;73:536–43.
- McConnell D, Butow PN, Tattersall MHN. Audiotapes and letters to patients: the practice and views of oncologists, surgeons and general practitioners. *Br J Cancer* 1999;79:1782–8.
- Stockler M, Butow PN, Tattersall MHN. The take-home message: doctors' views on letters and tapes after a cancer consultation. *Ann Oncol* 1993;4:549–52.
- Tattersall MHN, Butow PN, Griffin A-M, Dunn SM. The take-home message: patients prefer consultation audiotapes to summary letters. *J Clin Oncol* 1994;12:1305–11.
- Haslop C. Taped consultations in a thoracic oncology lung cancer service. *Cancer Nurs Pract* 2005;4:35–8.
- Eden OB, Black I, Emery AE. The use of taped parental interviews to improve communication with childhood cancer families. *Pediatr Hematol Oncol* 1993;10:157–62.
- Liddell C, Rae G, Brown TRM, Johnston D, Coates V, Mallett J. Giving patients an audiotape of their GP consultation: a randomised controlled trial. *Br J Gen Pract* 2004;54:667–72.
- North N, Cornbleet MA, Knowles G, Leonard RC. Information giving in oncology: a preliminary study of tape-recorder use. *Br J Clin Psychol* 1992;31:357–9.
- Krackow KA, Buyea CM. Use of audiotapes for patient education, medical record documentation, and informed consent in lower extremity reconstruction. *Orthopedics* 2001;24:683–5.
- Koh THHG, Butow PN, Coory M, Budge D, Collie L-A, Whitehall J, et al. Provision of taped conversations with neonatologists to mothers of babies in intensive care: randomised controlled trial. *Br Med J* 2007;334:28.
- Rylance G. Should audio recordings of outpatient consultations be presented to patients? *Arch Dis Child* 1992;67:622–4.
- Leahy M, Douglass J, Barley V, Jarman M, Cooper G. Audiotaping the heart surgery consultation: qualitative study of patients' experiences. *Heart* 2005;91:1469–70.
- Mishra PK, Mathias H, Millar K, Nagrajan K, Murday A. A randomized controlled trial to assess the effect of audiotaped consultations on the quality of informed consent in cardiac surgery. *Arch Surg* 2010;145:383–8.
- Cope CD, Lyons AC, Donovan V, Rylance M, Kilby MD. Providing letters and audiotapes to supplement a prenatal diagnostic consultation: effects on later distress and recall. *Prenat Diagn* 2003;23:1060–7.
- Ah-Fat FG, Sharma MC, Damato BE. Taping outpatient consultations: a survey of attitudes and responses of adult patients with ocular malignancy. *Eye* 1998;12:789–91.
- Bruera E, Pituskin E, Calder K, Neumann CM, Hanson J. The addition of an audiocassette recording of a consultation to written recommendations for patients with advanced cancer: a randomized, controlled trial. *Cancer* 1999;86:2420–5.
- Hack TF, Pickles T, Bultz BD, Degner LF, Katz A, Davison BJ. Feasibility of an audiotape intervention for patients with cancer: a multicenter, randomized, controlled pilot study. *J Psychosoc Oncol* 1999;17:1–15.
- Lobb E, Butow PN, Meiser B, Barratt A, Kirk J, Gattas M, et al. The use of audiotapes in consultations with women from high risk breast cancer families: a randomised trial. *J Med Genet* 2002;39:697–703.
- Bowden JR, Brennan PA, Butler-Keating R, Zaki GA. Use of audiotaped patient consultations in a head and neck oncology clinic and survey of patient attitudes to this facility. *J Laryngol Otol* 2003;117:879–82.
- Hack TF, Pickles T, Bultz BD, Ruether JD, Weir LM, Degner LF, et al. Impact of providing audiotapes of primary adjuvant treatment consultations to women with breast cancer: a multisite, randomized, controlled trial. *J Clin Oncol: Off J Am Soc Clin Oncol* 2003;21:4138–44.
- Hack TF, Pickles T, Bultz BD, Ruether JD, Degner LF. Impact of providing audiotapes of primary treatment consultations to men with prostate cancer: a multi-site, randomized, controlled trial. *Psychooncology* 2007;552:543–52.
- Uitdehaag MJ, van der Velden L-A, de Boer MF, Spaander MCW, Steyerberg EW, Kuipers EJ, et al. Recordings of consultations are beneficial in the transition from curative to palliative cancer care: a pilot-study in patients with oesophageal or head and neck cancer. *Eur J Oncol Nurs* 2012;16:109–14.
- Hogbin B, Fallowfield L. Getting it taped: the bad news consultation with cancer patients. *Br J Hosp Med* 1989;41:330–3.
- Deutsch G. Improving communication with oncology patients: taping the consultation. *Clin Oncol* 1992;4:879–82.
- Knox R. Audiotapes of oncology consultations: only for the first consultation? *Ann Oncol* 2002;13:622–7.
- Hack TF, Ruether JD, Weir LM, Grenier D, Degner LF. Promoting consultation recording practice in oncology: identification of critical implementation factors and determination of patient benefit. *Psychooncology* 2013;22:1273–82.
- Dunn SM, Butow PN, Tattersall MHN, Jones QJ, Sheldon JS, Taylor JJ, et al. General information tapes inhibit recall of the cancer consultation. *J Clin Oncol* 1993;11:2279–85.
- Ong LML, de Haes JCJM, de Reijke TM, Stouthard JML, Lammes FB. Providing cancer patients with the audiotaped initial consultation: experiences of patients and physicians. *Eur J Cancer* 1995;31:563.
- Hack TF, Whelan T, Olivetto IA, Weir LM, Bultz BD, Magwood B. Standardized audiotape versus recorded consultation to enhance informed consent to a clinical trial in breast oncology. *Psychooncology* 2007;16:371–6.
- Van Der Meulen N, Jansen J, Van Dulmen S, Bensing J, Van Weert J. Interventions to improve recall of medical information in cancer patients: a systematic review of the literature. *Psychooncology* 2008;868:857–68.