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Bolderston, A., Watson, J., Woznitza, N., Westerink, A., Di Prospero, L., Currie, G., Beardmore, C. and Hewis, J. (2017) Twitter journal clubs and continuing professional development: An analysis of a #MedRadJClub tweet chat. *Radiography*, 24 (1). pp. 3-8. ISSN 1078-8174.

Link to official URL (if available):

<http://dx.doi.org/10.1016/j.radi.2017.09.005>

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## **Twitter Journal Clubs and Continuing Professional Development: An analysis of a #MedRadJClub tweet chat**

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## Introduction

Traditional journal clubs evolved in healthcare to encourage scholarly activity and research awareness through the reading and discussion of journal articles<sup>1</sup>. The format has been used for over a hundred years in medical education. More recently the nursing and allied health professions have used journal clubs to help familiarise practitioners with an inexpensive and accessible method to explore new developments in their field, develop critical research analysis skills and help to ensure that their practice is evidence-based.<sup>2</sup> Traditional health care professional (HCP) journal clubs are usually facilitated by a leader, who selects a relevant article, prepares some learning points for discussion ahead of the meeting and guides face to face discussion with participants.<sup>3</sup> Criteria for successful journal clubs that have been proposed include voluntary attendance, a interprofessional focus, limiting participant numbers (guided by small group learning principles) and linking learning activity to continuing professional development needs (CPD).<sup>2</sup> Medical radiation science (MRS) professionals are those who employ various forms of medical imaging and/or use ionizing radiation in the diagnostic and therapeutic care of patients<sup>4</sup>. MRS journal clubs exist in many Medical Imaging and Radiation Therapy departments and evidence suggests that they are perceived to be useful in encouraging practitioners to become familiar with relevant professional research literature and improving critical analysis skills.<sup>5,6</sup> In the last few years, journal clubs have also been developing using social media platforms. Initially these were in the form of dedicated web sites, discussion forums or online conferences.<sup>7</sup> More recently, however, there has been a proliferation of journal clubs using the social media platform of Twitter.<sup>8,9</sup>

Twitter is a free social media service, users can share tweets that are limited to 140 characters, and that can be augmented by attached images and/or emojis (a small image or icon used in social media to express an emotion).<sup>10</sup> Content can be categorised and collated through the use of hashtags allowing users to follow subjects of interest and contribute to discussions. It

is useful for live events (such as tweet chats) and its character limit encourages fast and conversational communication that can transcend geographical boundaries and social groups, connecting people from all walks of life.<sup>11</sup> In the first quarter of 2017, Twitter had an average of 328 million monthly active users and each day about 500 million tweets are sent.<sup>12</sup> Twitter is increasingly being used for research, including reviewing patient experience with patients undergoing Magnetic Resonance Imaging (MRI) scans.<sup>13</sup>

In March 2015, a group of medical radiation practitioners (radiographers, radiation therapists, nuclear medicine technologists) from several countries organised the inaugural MRS Twitter journal club, MedRadJournalClub (MRJC).<sup>14</sup> The group organises a monthly chat, usually based around an article chosen from one of the three major international MRS journals (Journal of Medical Imaging and Radiation Sciences, Radiography and Journal of Medical Radiation Sciences). Themes are developed by the MRJC organising group based on the chosen article. These themes (along with chat times, an accompanying monthly blog and associated supplementary readings) are posted on the journal club website. The monthly chats are very popular and involve medical radiation practitioners from all disciplines, as well as sonographers and other allied health and nursing clinicians. In its two-year existence, over a thousand people have participated in MRJC chats, sending more than 14,000 tweets. It has also provided a forum for international and inter-professional discussion, as well as precipitated three international research projects, seven conference presentations and workshops, and innumerable professional and personal connections.

The purpose of this study is to evaluate the perceived benefits and limitations of medical radiation practitioners participating in an online journal club with a thematic analysis of a MRJC tweet chat.

## **Methods**

The February 2017 chat was based on the Journal of Medical Imaging and Radiation Sciences article by Currie et al “Twitter Journal Club in Medical Radiation Science” (2016) that examines the educational theory behind learning and evidencing professional development through MRJC and social media<sup>14,15</sup>. The one-hour chat was guided by the following themes:

1. What are the enablers and barriers to a traditional journal club?
2. How do you learn when you engage in Twitter journal clubs/chats?
3. Do you evidence your Twitter-based CPD? How?
4. Has Twitter experience informed and/or changed your practice?

Content from Twitter is in the public domain, and open for public access. Twitter users, when agreeing to the Terms of Service, consent to their profile information, their tweets and associated metadata (e.g. location), being publicly available.<sup>16</sup> Additionally, for low risk research (for example, where account holders are not identified and data is presented in a summative form) consent is generally not deemed necessary as long as the objectives, methodologies and data handling practices of the study are transparent.<sup>17,18</sup> Consent was therefore not sought from participants for the aggregate (analyzed) data, and ethics approval was not necessary.

### **1. Data extraction**

Data extraction and analysis took place between March and April 2017. The tweets from the 37 participants of the February 2017 chat were retrieved using the Twitter advanced search function using the #medradclub, with no key word used. The initial search yielded 330 tweets.

### **2. First review**

The first review excluded retweets or tweets that did not appear to be directly related to any of the themes (e.g. social exchanges or side conversations on other matters). Tweets prior to the official chat start time were also discarded as they were either promoting the chat or giving apologies for not being able to attend.

### 3. Second review

After the first review, the final number of tweets that were deemed appropriate for analysis was 138. A manual review of each tweet was done to categorize the main theme of the tweet. The tweets were then sorted into groups and entered into a spreadsheet.

### 4. Thematic analysis

As well as the four chat themes, the analysis yielded three additional categories. The initial analysis was carried out by one of the authors (JW) and a consensus meeting was held with a second author (AB) to confirm the initial categories. No changes were made after the meeting.

## Results

The final analysis produced seven different categories (table 1).

| Themes                    | Sub themes | Tweets | Tweet examples  |
|---------------------------|------------|--------|---|
| Traditional journal clubs | Enablers   | 5      | “Try to help staff publish and put in papers in a good state for peer review. Helps highlight research to team” |
|                           | Barriers   | 20     | “Shift patterns make it difficult in a diagnostic department to get staff together”                             |
| Twitter journal clubs     | Enablers   | 23     | “We have participants at the pub, train, home, work, park, cafe - no physical barriers”                         |
|                           | Barriers   | 16     | “Wish Twitter had a few more characters sometimes”  |

|  |  |    |  |
|--|--|----|--|
| How do you learn when you engage in twitter journal clubs/chats?         |  | 30 | "So many different things going on in different departments (never mind countries). Great for generating ideas/discussion"   |
| How do we increase participation?  |  | 20 | "I've put a poster up on our CPD board, not sure if any take heed, or are even lurking"                                      |
| Do you evidence your twitter based CPD?                                  |  | 7  | "I'm generally terrible at recording CPD"  |
| How do you evidence your twitter based CPD?                              |  | 5  | "Usually the clever folk @medradclub put a transcript of the chat on the website which make it easier"                       |
| Has your Twitter journal club experience informed/changed your practice? |  | 13 | "I 'have used twitter chats in teaching instead of face to face activity. Thanks #medradclub for showing how it could work!" |

Table 1: Themes derived from the February 2017 MedRadJClub tweet chat

1. What are the enablers and barriers to a traditional journal club?

Enablers (5 tweets)

Enablers for a traditional (non-social media based) journal club included having local peers and staff that are enthusiastic about professional development and evidence based practice. Participants were aware that to get a journal club up and running perseverance may be needed. Journal clubs can introduce staff to research and published work, which may inspire research and publication by participants. Additionally, publication can serve to enhance individual and departmental reputation. Face to face discussion at a journal club can help neophyte researchers by allowing real time explanation and discussion.

Barriers (20 tweets)

The most mentioned difficulty in organising and sustaining a face to face journal club was limited time at work (and work commitments) and the effort to get staff together at one time and in one place. Furthermore, many departmental journal clubs are organised and run by physicians. This can be intimidating and topics may not always be relevant for medical radiation professionals. There may also be a power differential with senior staff; more junior staff may be reluctant to speak up or offer contrary opinions. With a local journal club, there may be the same group of people attending every time leading to a lack of variety in participants. If journal clubs are held over lunch or after-hours people may be unwilling or unable to use their own time for professional development.

2. What are the enablers and barriers to a Twitter journal club?

Enablers (23 tweets)

Benefits of Twitter journal clubs mentioned by participants were numerous. The most mentioned was the global participation, collaboration and networking that occurs. Participants are able to “lurk” before posting and have time to gain confidence. As the chat is virtual, there are no physical limitations and the chat can be accessed anywhere with an enabled device. After the chat, a record exists that can be used for evidence of CPD, for example through Storify<sup>19</sup>. The 140-character limit keeps discussion short and to the point, and the purely written communication eliminates the nuances of body language and non-verbal communication (which might be beneficial for some people who are introverted, for example). Many people access MRJC at work, and there is an option to multitask while following along. Finally, the fact that one or more open access papers are posted each month enables easy access to recently published research.



### Barriers (16 tweets)

The biggest barrier was perceived to be the limitation imposed by character length that could restrict meaningful exchange. Additionally, the rapid back-and-forth of a tweet chat can be off-putting for some. The one-hour fast format can also sometimes make it difficult to grasp complex topics and ideas. The second most often mentioned barrier was that some people were not involved in the use of social media or Twitter therefore would not be interested or able to join in.

Similar to the previously mentioned barrier to traditional journal clubs, some people are unwilling to use their own time for CPD. There is an inherent perceived risk with using social media; organizational policies that restricted use at work were mentioned and the fear of mixing professional activities with personal ones. Participants join MRJC from across the world and time zone differences can make it difficult to access one-hour chats.

### 3. How do you learn when you engage in twitter journal clubs/chats? (30 tweets)

The ability to learn from a wide variety of globally shared knowledge, perspectives and ideas from people with shared professional interests was the most mentioned. Other ways of learning through Twitter journal clubs were that honing contributions down to the required 140-character limit taught concise communication. The pre-chat preparation and reading was mentioned as well as the ability to go back and review the transcript after the live chat is over. Discussions also continue after the chat, sometimes several days afterwards. The quick pace allows questions to be answered quickly and one person said they felt “forced to contribute” which helped them learn.

#### 4. How do we increase participation? (20 tweets)

A frequently mentioned method of increasing participation was to promote Twitter-based journal clubs to students and younger medical radiation professionals. This could be indirect or through universities targeting students directly through classwork (for example). Regular Twitter journal club attendees might also encourage colleagues in their departments to join in, emphasising the fun aspect of the chats. Stressing that journal clubs have been shown to facilitate a research and professional development culture that can improve care for patients could be a way to encourage attendance. Other methods mentioned included diverse topics, having extended chat times and adding a Facebook page.

#### 5. Do you evidence your twitter based CPD? (7 tweets)

Most people didn't seem to evidence their Twitter based CPD, and several commented that they needed guidance on how to. There was only one comment that "everyone should" which was countered with the fact that some participants had no need to officially log their CPD activity.

#### 6. How do you evidence your twitter based CPD? (5 tweets)

Participants evidenced their CPD by writing reflective pieces regarding what they had learned from the chat, one person mentioned that their department had a journal club template that they used. One person used the transcript posted after the chat as evidence.

#### 7. Has your Twitter journal club experience informed/changed your practice? (13 tweets)

There were a number of indications that Twitter journal club participation had affected professional activities, both directly and indirectly. Twitter chats have been used by educators for teaching students, and have inspired participants to seek out new educational opportunities. Contacts made online have provided research and practice advice as well as ideas for future work. One particular chat was mentioned (on time management) as having provided practical help. Finally, one person said that they had improved confidence and learned new ways to approach patients through a Twitter journal club chat.

## **Discussion**

While the questions posed during the chat used the terms “enablers and barriers”, these terms were conflated with the concepts of advantages/benefits (enablers) and disadvantages (barriers) by the participants to some degree. Many of the benefits cited for a traditional journal club can also be applied to a Twitter based journal club, for example introducing people to research ideas, mentorship and potentially facilitating future work and publications.

The main benefits of using a Twitter-based journal club over a face to face version mentioned by participants were global participation, collaboration and networking. These are often cited advantages to social media based CPD<sup>20</sup>. Lawson and Cowling (2014) define collaboration as information sharing and working together to solve problems and networking as “interacting with others to develop professional and social relationships”.(p.e76)<sup>11</sup> These concepts are connected to, but not exactly the same as, CPD which has been defined as “a process by which a professional keeps abreast of changes and maintains the necessary level of expertise to provide optimal patient care”.(np)<sup>21</sup> The ability to have a wide geographically dispersed group of learners/participants is probably the most often mentioned advantage in the literature.<sup>8,9,11,22,20,23</sup>

Having a (globally) diverse group of learners brings different perspectives and participation is not hampered by the inability to travel. The Twitter format can also solve some of the traditional challenges of face to face CPD such as cost and distance, allowing participants to join in with any enabled device rather than having to meet at one designated time in one physical location.<sup>24</sup> This might be particularly relevant in countries like Canada and Australia with largely distributed populations.

CPD can be formal (for example, workshops or lectures) or informal (such as conversations with colleagues); both formats are amenable to online environments and social media such as Twitter.<sup>20</sup> The focus of the analyzed chat was ostensibly learning through social media, but it was obvious that the definition of CPD throughout the chat was diverse and included the concept of social learning similar to that defined by Lave and Wenger as a community of practice.<sup>25</sup> Participants learn together during the chat, new members are gradually brought into the community and “a wide range of temporally and spatially defined interpersonal relationships” have arisen from the online interactions.(p.508)<sup>26</sup> Many professional and personal connections have been made; one student participant posted that she had “met some truly great people who I wish to meet in person one day”. This internationalization has also encouraged face to face meetings at several professional conferences.

A disadvantage of face to face journal clubs that may be mitigated with a Twitter version is social pressure, particularly in a mixed professional group. There may be an equalising effect using social media, especially for junior HCPs who feel intimidated in a group of senior staff.<sup>27</sup> Participation can be highly active or passive (“lurking”) on Twitter, both can facilitate learning to different degrees.<sup>22</sup> One participant commented that people are “more likely to join a discussion with limited knowledge or experience using SoMe (social media). Can’t see blushes?”

Challenges mentioned included the inherent risks of using social media as a HCP. Most healthcare social media policies are concerned mainly with risk management that includes ethics, professionalism and communication with patients.<sup>28</sup> One significant disadvantage noted was that not everyone tweets. A chat participant commented that “I meet academics and staff who aren’t tech savvy, may not have access to training”. This limits participation in any Twitter-based activity and it can take time and persuasion to encourage non-tweeters to join in.<sup>29</sup> The fast pace of a tweet chat, as well as the restrictive character limit, can be off-putting, especially for new tweeters (although the speed of the chat often depends on participant numbers, lower numbers can mean a slower chat). Taking notes, “favouriting” tweets to read later and reading post-chat transcripts are all ways to increase knowledge uptake.<sup>20</sup> Providing a reference for novices on how to participate can help encourage new participants.<sup>30</sup> The MRJC webpage has a link to the WeCommunities “Tweeteriversity” which contains guidance for those new to Twitter.<sup>31</sup>

Some authors have suggested using multiple platforms such as Facebook or Google+ to facilitate longer discussions.<sup>23</sup> This was also suggested in the chat as a way to increase participation. Finally, timing of the chat can be an issue. Chat times are usually late in the UK and early in Australia and New Zealand. Longer MRJC chats (up to 12 hours) have been tried to better accommodate a global audience, but the downside of this is that the energy and momentum of a one-hour chat could be lost and there may be less live engagement between international colleagues.<sup>23</sup>

Ways of learning mentioned included reading the posted pre-chat background reading and the ability to access and review transcripts post-chat. Having a home page and aggregating resources related to the chosen paper is key to “longer and more nuanced discussions”.(p.149)<sup>23</sup> The MRJC website usually contains pre-chat recommended readings, an accompanying blog related to the paper topic as well as post-chat transcripts and analytics.

Many medical radiation practitioners (at least those from the UK, Canada and Australia) work in a regulated environment where many have to accumulate a predetermined number of hours, points or credits to evidence their CPD thus it was somewhat surprising that so few participants did not seem to evidence their involvement with a Twitter chat as CPD. Healthcare professionals accessing CPD online is increasingly common, and a large amount is free to use.<sup>28</sup> The organisers of MRJC are developing a guide to evidencing tweet chats for CPD that will be posted on the website.

There's growing evidence that informal education (like tweet chats) are becoming a significant part of CPD for many HCPs.<sup>11</sup> This can be advantageous as self-selected informal CPD may be more relevant and directly connected to practice.<sup>20</sup> Nonetheless, tracking and evidencing this may be lagging behind, at least with the participants from this chat. This highlights the international scope of the MRJC and the need to articulate local requirements. For example, in Australia participants could be encouraged to diarise their participation so it is evidenced for nationally mandated CPD log books<sup>32</sup>. Similar CPD requirements are required for practitioner registration in the United Kingdom (where reflective practice linked to the radiographers' specific scope of practice is required) and parts of Canada<sup>33,34</sup>. With varying local requirements for CPD, the need to evidence the activity will vary along with the type of evidence required. Previous systematic reviews indicate limited research has been conducted to determine the measurable impact of journal club participation on attitudes and behaviour to CPD activity.<sup>35,36</sup> The findings of this study would similarly support that further research is required.

Suggestions from Moorley and Chin (2014) to capture online and social-media based learning include using reflection to document the following<sup>20</sup>:

- Why the discussion may be relevant and what could be gained by participating?
- How did the discussion unfold (a self-summary) and what were the differences of opinion?
- What was interesting and what will be followed up on later?
- Why was the discussion relevant to your practice and what might you change?

A number of people suggested engaging students and junior medical radiation professionals to increase participation in the MRJC Twitter chats. Tweet chats have been used successfully by educators to engage students as part of their learning.<sup>8,26</sup> A regular MRJC tweeter posted that she had used Twitter chats in teaching instead of face to face activity. Young adults tend to use a wide variety of social platforms, the most common being Tumblr, YouTube and Instagram.<sup>37</sup> As discussed previously, using alternative mechanisms might increase uptake with different demographic groups, as well as facilitate longer or more nuanced chats.<sup>23</sup> However, using more social media platforms could also spread the participants out too thinly and risk the demise of the MRJC.

Participants noted that being involved in tweet chats (particularly MRJC) had made a difference in their daily clinical practice. The connections made during MRJC have precipitated collaboration and help with research. One participant commented that “finding people that have the same passion for research is one of my favourite parts of #medradclub”. Social media is an effective way to provide support for research (in its broadest definition), both in the early stages and in the final dissemination.<sup>8,29</sup> Twitter has been called a research mediator allowing HCPs to selectively access curated research content, although it is unsure if MRS professionals currently use it in this way.<sup>38</sup> Tweet chats and Twitter more generally are a good way for HCPs to be

connected to new ideas and information.<sup>20</sup> To date, there has been no objective published evaluation of knowledge uptake and/or retention available through Twitter.<sup>9</sup>

### **Research limitations**

Limitations may include the fact that Tweets by participants who incorrectly used (or omitted) the hashtag were not extracted and included in the data sample. Also the benefits cited by participants are somewhat anecdotal and might not be generalizable for other participants. The chat is conducted in English only so non-English speakers are excluded. Finally, this was an analysis of one chat session only therefore included a small sample of self-selected participants

### **Conclusion**

This study successfully provides a novel insight into participant experience during an online journal club tweet chat.

The main benefits cited by participants for an online journal club over traditional face-to-face approach, included wider access for participants by removing physical limitations with increased sustainability over time. Open access to recently published research was another key benefit for participants and the wider profession. The online nature of MRJC has facilitated global participation with wider networking and collaboration that would not have been possible through a more traditional method. The scope and impact of this networking was not a measured outcome of this study.



While journal clubs have traditionally been an effective way to engage HCPs in CPD, the emergence of Twitter has the potential to revolutionise the format. Twitter provides a rich, free platform to invigorate and globalise CPD and the journal club, but not without challenges for the participants. The character limitation of a tweet was the most common constraint, and the dynamic nature of the twitter conversation requires multi-tasking that may be overwhelming for some members.

The study identified that many MRJC participants do use their experiences as a form of formal CPD activity with some evidence that this is directly informing clinical and educational practice in medical radiation science.

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