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Chugai Pharmaceutical Co., Ltd.
Embrace Co., Ltd.
IQVIA Solutions Japan K.K.

Xeloda[®] Adherence Support App Contributes to Improving Communication between Cancer Patients and Healthcare Providers

TOKYO, October 18, 2018 -- [Chugai Pharmaceutical Co., Ltd.](#) (TOKYO: 4519), Embrace Co., Ltd. (TOKYO), and IQVIA Solutions Japan K.K. (TOKYO) announced results of a validation test for a Web app to support drug adherence. Chugai has provided certain key hospitals with a trial service of a Web app that integrates a Xeloda[®] adherence support app, which enables patients to record administration of the drug, developed by Chugai and a MedicalCareStation, a multi-disciplinary SNS (social networking service) developed by Embrace Co., Ltd. (TOKYO) for the purpose of promoting communication between patients and healthcare providers and managing side effects. Results from a validation test of the App have been reported in collaboration with IQVIA.

[Background of a trial use of a Xeloda administration recording app]

A survey conducted by Chugai with patients who underwent chemotherapy* revealed that 21% of patients have less than five minutes to talk with their doctor during a physician's visit. In response to a question asking when they felt uneasy, 35% of patients answered that it was in the period from being diagnosed with cancer to the hospitalization, and 21% said it was while they were taking a medical treatment. Also, 31% of patients said their nurses always made time for them to answer any questions they have, while 10% of patients answered that talking with nurses was difficult as they were busy.

* Survey target: 146 patients who received chemotherapy

Method: Web survey

Survey period: December 13, 2017 - December 18, 2017

[Evaluation by healthcare providers and patients/family members who used the Xeloda administration recording app]

After the app was used at several hospitals for a certain period of time, IQVIA conducted a questionnaire survey and an interview with healthcare providers, patients/family members to analyze the app usage log and make a comprehensive evaluation of the usefulness of the app. Consequently, the degree of satisfaction of both healthcare providers and patients/family members was high. At the same time, some issues in offering the app in the future were revealed.

[Scheme of survey]

Survey period: June - August 2018

Survey target: 15 healthcare providers (doctors, nurses and pharmacists), 6 cancer patients and 4 patient's family members who participated in the trial use of the app.

Questionnaire respondents: 15 healthcare providers, 2 patients, and 1 patient's family member

Group interview: Healthcare providers (conducted at each hospital)

[Summary of survey results]

1) Questionnaire survey results

- 80% (12/15 people) of people who answered to the questionnaire said, "It is useful, even though it requires time and effort."
- About 50% (8/15 people) of people who answered to the questionnaire said, "I want to recommend this to other hospitals." One third (5/15 people) responded, "Neutral. We need to consider target patients and timing."
- About 80% (13/15 people) of people who answered to the questionnaire appreciated the app's function to enhance communication between healthcare providers and patients/family members, mainly because it was useful for early detection of patients' condition including adverse events and deepening consultations.
- About half (8/15 people) of people who answered to the questionnaire responded, "I could shorten the consultation time."
- While some people appreciated the app's function to enable E-mail communication, there was also a comment that "It is troublesome to use everyday."

2) Results of group interview with healthcare providers

- They appreciated that "they could detect adverse events early and deal with them promptly", "they could deepen their consultation with patients since they could have more information prior to their patients coming to the hospital," and "they could reduce anxiety of their patients/family members since they could take care of those patients/their family members while they were at home."
- There were comments that "it was a pain to enter information into the app and making phone calls is faster to communicate with patients", "need to select target patients", and "system improvement is necessary."

3) Status of the usage of the app

- Both healthcare providers and patients/family members more entered their comments to the app at the outset of the introduction of the app, and the number of comments entries gradually reduced.
- Entry of medication status by patients/family members was done almost every day, and entry of symptoms was done once a week or so.

[For the future]

To ensure smooth communication between more patients and healthcare providers, Chugai will continue to be committed to promoting treatment support activities and side effects management by providing new solutions in other therapeutic areas as well.

Notes regarding this app

- Medical fee cannot be claimed for the reimbursement by the National Health Insurance.
- If an adverse event is observed after the administration of Xeloda, healthcare providers are required to report the event to Chugai separately from the app.

About Chugai

Chugai Pharmaceutical is one of Japan's leading research-based pharmaceutical companies with strengths in biotechnology products. Chugai, based in Tokyo, specializes in prescription pharmaceuticals and is listed on the 1st section of the Tokyo Stock Exchange. As an important member of the Roche Group, Chugai is actively involved in R&D activities in Japan and abroad. Specifically, Chugai is working to develop innovative products which may satisfy the unmet medical needs, mainly focusing on the oncology area.

In Japan, Chugai's research facilities in Gotemba and Kamakura are collaborating to develop new pharmaceuticals and laboratories in Ukima are conducting research for technology development for industrial production. Overseas, [Chugai Pharmabody Research](#) based in Singapore is engaged in research focusing on the generation of novel antibody drugs by utilizing Chugai's proprietary innovative antibody engineering technologies. [Chugai Pharma USA](#) and [Chugai Pharma Europe](#) are engaged in clinical development activities in the United States and Europe.

The consolidated revenue in 2017 of Chugai totalled 534.2 billion yen and the operating income was 103.2 billion yen (IFRS Core basis).

Additional information is available on the internet at <https://www.chugai-pharm.co.jp/english>.

About Embrace

Embrace's mission is to create the new social infrastructure by providing Medical and Nursing ICT Platform. Since 2013, our Medical and Nursing SNS called "MedicalCareStation" has been used by tens of thousands of medical facilities, doctors, nurses and caregivers including over 180 Medical Associations in Japan.

We focus on solving issues that has been and will be caused by the 'Aging Society' and we try to establish the new eco-system among medical-staffs, patients, residents, partner companies and the government by connecting them on MedicalCareStation platform.

About IQVIA

IQVIA (NYSE:IQV) is a leading global provider of information, innovative technology solutions and contract research services focused on helping healthcare clients find better solutions for patients. Formed through the merger of IMS Health and Quintiles, IQVIA applies human data science - leveraging the analytic rigor and clarity of data science to the ever-expanding scope of human science - to enable companies to reimagine and develop new approaches to clinical development and commercialization, speed innovation, and accelerate improvements in healthcare outcomes. Powered by the IQVIA CORE™, IQVIA delivers unique and actionable insights at the intersection of large-scale analytics, transformative technology and extensive domain expertise, as well as execution capabilities. With more than 55,000 employees, IQVIA conducts operations in more than 100 countries.

IQVIA is a global leader in protecting individual patient privacy. The company uses a wide variety of privacy-enhancing technologies and safeguards to protect individual privacy while generating and analyzing the information that helps their customers drive human health outcomes forward. IQVIA's insights and execution capabilities help biotech, medical device and pharmaceutical companies, medical researchers, government agencies, payers and other healthcare stakeholders tap into a deeper understanding of diseases, human behaviors and scientific advances, in an effort

to advance their path toward cures. To learn more, visit www.IQVIA.com.

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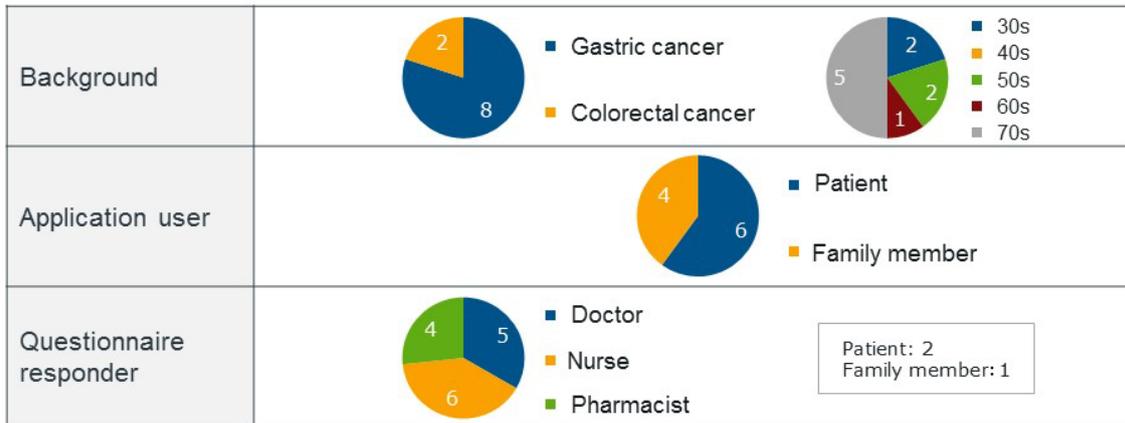
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[Reference]

About the Survey

[Background and method]



Object	Method	Survey timing
Healthcare providers	Questionnaire	At the end of use in all target patients of each institution
	Group interview (each institution)	
Patients/Family members	Questionnaire	At the end of use by each person
Both	Application log analysis	At the end of use at all institutions

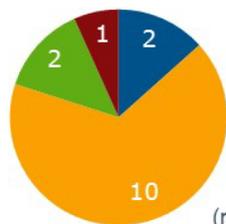
[Degree of satisfaction of the app (healthcare providers)]

Questionnaire (healthcare providers)

Q. Is this system useful even though it requires time and effort?

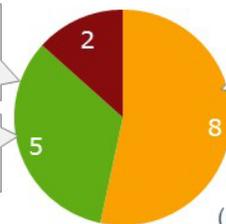
Q. Do you want to recommend this system to other hospitals?

■ 5 (I strongly think so)
 ■ 4 (I somewhat think so)
 ■ 3 (Neutral)
 ■ 2 (I don't somewhat think so)
 ■ 1 (I strongly don't think so)

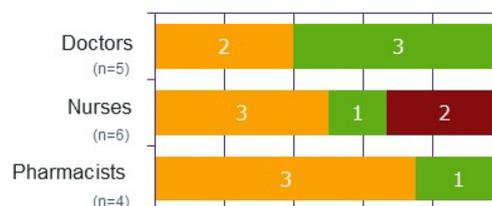
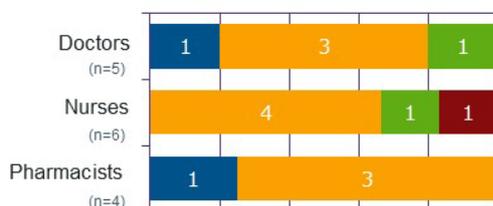


I think it's very useful especially when patients feel a lot of anxiety at the beginning of the Xelox treatment.

As for Adjuvant and NAC, it would be better if we could see the end of the course.



As a whole, I think it is useful, but it would be even better if part of the functions would be improved.

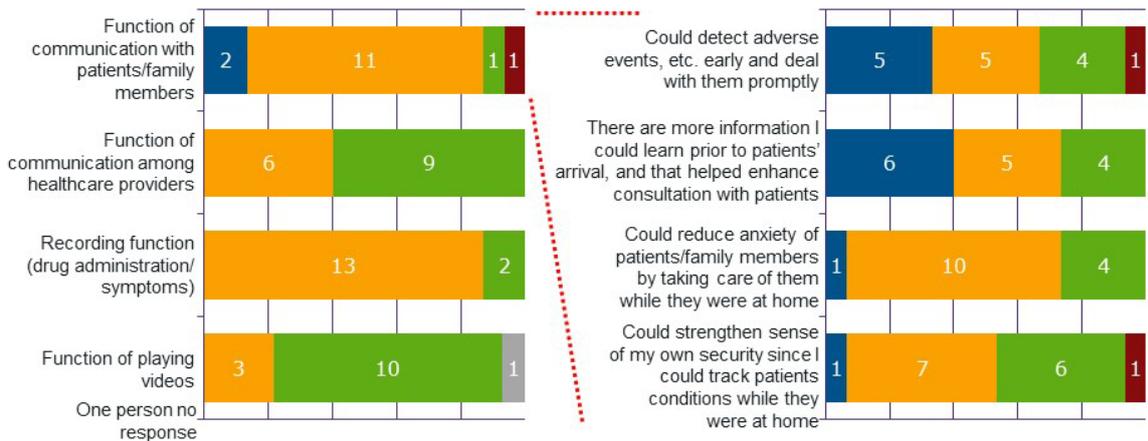


[Evaluation of the app functions]

Questionnaire (healthcare providers)

Q. How did each function make you feel?
(Compared to the time without the app)

- 5 (Very satisfied) ■ 4 (Somewhat satisfied) ■ 5 (I strongly think so) ■ 4 (I somewhat think so)
- 3 (Neutral) ■ 2 (Somewhat dissatisfied) ■ 3 (Neutral) ■ 2 (I don't somewhat think so)
- 1 (Very dissatisfied)
- 1 (I strongly don't think so)

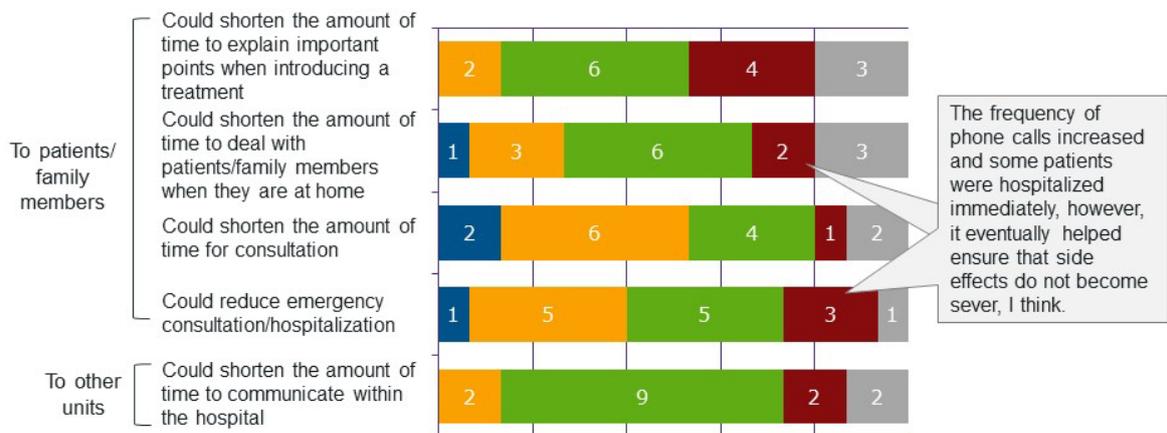


[Time evaluation]

Questionnaire (healthcare providers)

Q. Did it have a positive effect on reducing the work hours?
(Compared to the time without the app)

- 5 (I strongly think so) ■ 4 (I somewhat think so) ■ 3 (Neutral) ■ 2 (I don't somewhat think so) ■ 1 (I strongly don't think so)



[Results of group interview]

Group interview (healthcare providers)

[Doctor]

- Could provide patients who got diarrhea or became anorexic with an instruction to discontinue the medication early on.
- In terms of hand-foot syndrome of a patient, who consulted me by phone, it was good I could receive a picture of the hand-foot syndrome and check the course of it.
- With information shown on the app provided by patients' family members, who couldn't accompany patients on a consultation session, I could provide appropriate instructions to the patients when they were seen.
- The app was introduced to all hospitalized patients with stomach cancer this time. But the app would be useful for outpatients who need to be tracked early on (at our hospital, patients with colorectal cancer).
- Information entered in the app was not sufficient sometimes, and I ended up asking the patients to come to the hospital.
- I felt it was a burden to check posted comments outside consultation hours.

[Nurse]

- It was good I could track the recovery process of patients with anorexia.
- When display of drug administration schedule became different from the actual schedule due to discontinuation of the drug, etc., I had to go through the electronic health record and I felt it was a burden.
- It is faster to talk over the phone rather than using the app.

[Pharmacist]

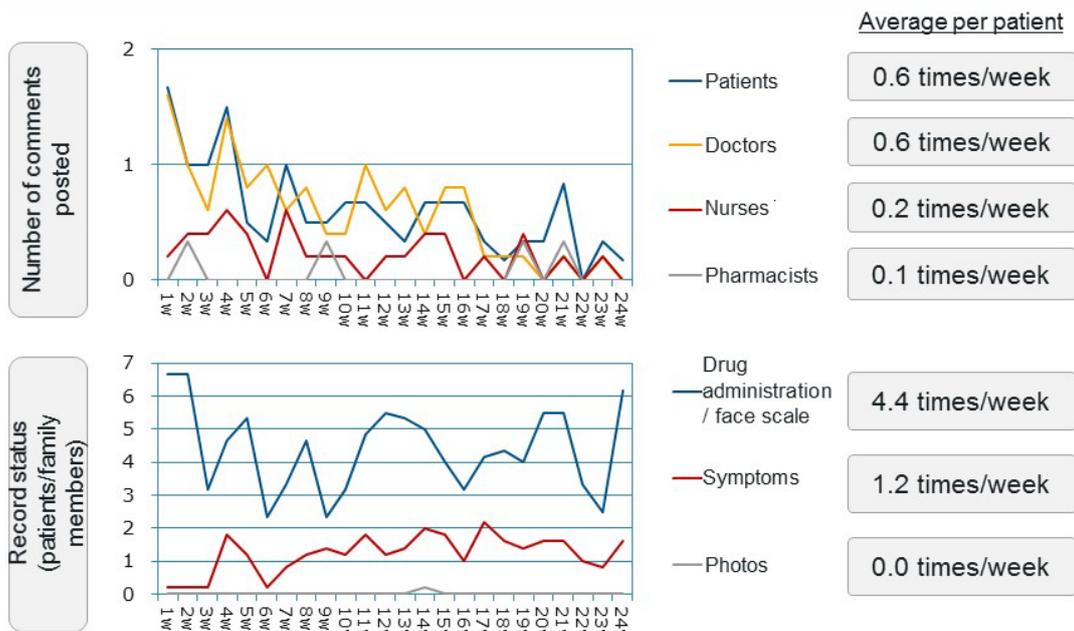
- It was good I could grasp the situation before outpatients visit to the pharmacy and I could have a meeting with the doctor in advance.

[Both]

- I receive appreciative feedback from patients, such as they felt they were under the benevolent watch and they felt secure.

[Status of the usage of the app]

App log (healthcare providers/patients/family members)



- Date of the first entry of drug administration record is calculated as the first day of a week for each patient.
- Six patients whose drug administration records were available between the 22nd and 24th week (equivalent to 8th cycle) were targeted for this count.
- Even there were several postings a day, it was counted as one, and the average was calculated by each patient case.
- Drug administration status was based on the days when the status was entered. (Even in the case where one-week drug administration statuses were entered all at one go, it is counted as seven-day medication statuses were recorded.)