



Usefulness of Informing Patient Condition and Self-evaluation in Medical Image Management -New Function in Medical Image Check System-

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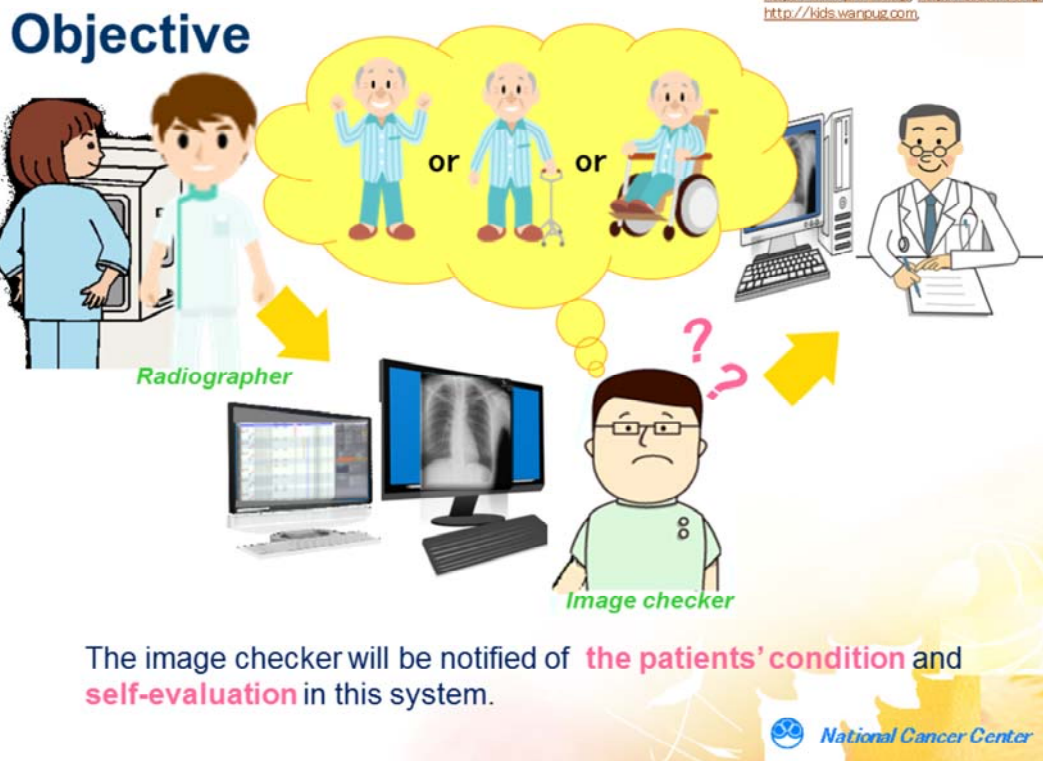
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国立がん研究センター中央病院の大和田です。よろしく申し上げます。

First of all I want to say thank you for giving me this opportunity to make a presentation.

My name is OOWADA from National cancer center Tokyo Japan.



当院では撮影者が画像を撮影し、検像システムに転送します。そして検像者が画像を確認し、PACSに画像を転送しています。

しかし検像者から撮影者へ撮影時の患者状態の問い合わせが多く発生しました。そこで、撮影画像の最終確認には撮影時の患者状態を加味する必要があると考え、今回RISに検査状況入力画面を追加し、検像者へ撮影時の患者状態と自己評価も送るように変更したので、その内容を報告したいと思います。

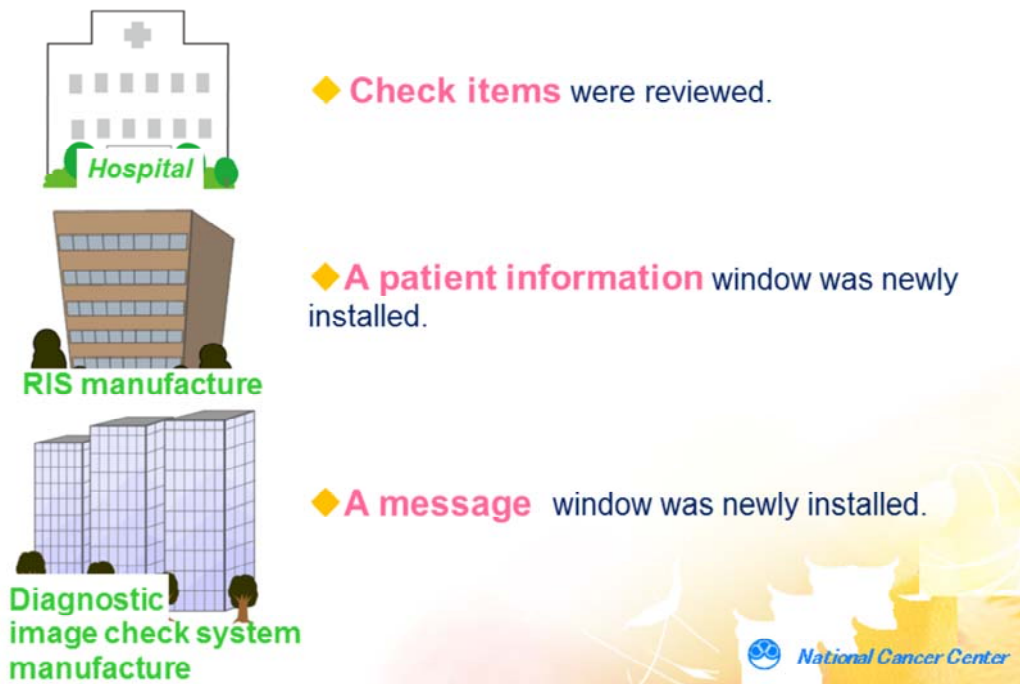
Radiographers take medical images and transfer them to the image checking system at our institution. The administrator of the system checks them, once accepted, they will be transferred to PACS.

Since its installation, there have been many inquiries from the administrator to radiographers, most of which are about the patients' condition at medical tests.

This situation led us to fix patients' status as one criterion in judging image quality to fully utilize the image checking system.

Reporting window was added to the existing RIS to inform the checkers of patients' condition and image evaluation by the radiographers.

Methods ~ RIS input screen ~



1. まず病院側にて、各モダリティで撮影時の患者状態を示す項目やチェック項目の洗い出しを行いました。
2. 次にRISメーカーに依頼し、RIS画面上に検査状況入力画面を追加しました。
3. そして検像メーカーには、検査状況入力画面から入力された内容を検像システムの画面に表示し、必要に応じてアラート表示を行わせ、検像者に注意を促すよう依頼しました。

At first, all the items regarding patients' condition and check items in each modality were reviewed and summarized in the hospital side.

We, then, had the RIS manufacture make a new window for patients' status in RIS.

We also had Image check system manufacture make a new window showing valuable information from the radiographers in the system.

So the administrator can be informed of the message from the radiographer or can be alerted to if necessary.

Methods ~ RIS input display~

検査状況入力

X-ray examination situation

X-ray projection Good Bad

Image number Good Bad

Image Contrast Good Bad

Specified instruction Included Not included

Revised instruction Included Not included

Breathing control Good Bad

Patient condition Good Bad

Patient status Awaiting Left

Self-evaluation 5 4 3 2 1

OK CANCEL CLEAR

Point

- All boxes to be fully checked.
- The contents varies among each imaging modality.
- Self-evaluation to be standardized.
- Images for awaiting patient is to be checked immediately.
- Radiographers are to self-evaluate their x-rays considering the checked points.

こちらがRISに追加された入力画面です。

ポイントは

- ・全項目の入力必須
- ・モダリティで入力項目変更
- ・モダリティごとの自己評価基準が必要（個人差をなくすため）
- ・患者待機「有」の時は急検像扱い
- ・入力項目を加味して自己評価を入力

です。

This is an example display representing examination situation.

What we would like to emphasize here are

- ・ All boxes to be checked.
- ・ Check items vary from modality to modality.
- ・ Self-evaluation standard should be well established in each modality.
(In order to avoid bias of judgment)
- ・ In case of awaiting patients, the administrator will check their images immediately.
- ・ Self-evaluation score must be checked considering all the other points above.

Methods ~Image checking display~

Image checkers can be alerted.
Image check will run immediately in case of awaiting patients.

こちらが検像システムの画面です。

入力項目のチェック内容により、検像システムの画面に各種アラートを表示させる。

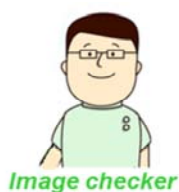
患者待機「有」の入力により急検像ステータスが追加され、業務のスリム化が実現した。

This is an example display of the Image checking system.

Image checkers can be alerted to some contents appeared on the image checking screen.

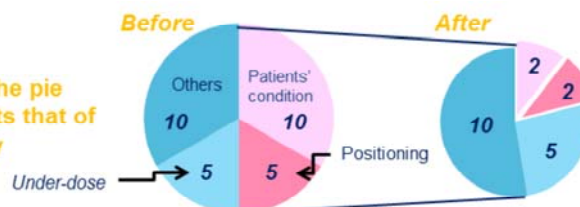
He is encouraged to check the image immediately, when the patient is awaiting status.

Results



- ◆ The number of inquiries has been **reduced**.

The number in the pie charts represents that of inquiries in a day



- ◆ Radiographers can **concentrate** more on their jobs!

Understood well its concept and aim,
Image management system has worked well.



検像者から撮影時の患者状態に関する、撮影者への問い合わせが減少しました。

撮影者は撮影業務に集中することが出来るようになりました。

共通認識のもと自己評価を入力することによって検像者の検像作業が、スムーズとなりました。

The number of inquiries on patients' condition to the radiographers has been reduced.

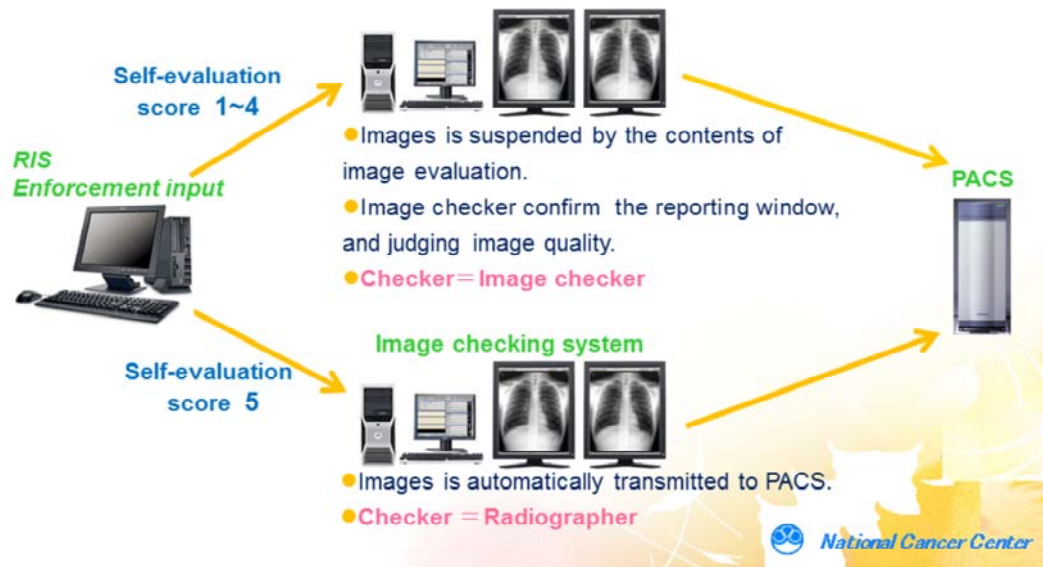
Radiographers have been able to concentrate more on their jobs!

Image management has proceeded well, as both the radiographers and administrators understand the concept and aim of this system.

Results ~ additional function ~

- ◆ The automatic-transmission function based on image evaluation was added to Image checking system.

(It is effective at the hospital where the staff cannot engage in Image check.)



また当院では使用する予定はありませんが、今回の機能によって検像システムから自動でPACSに画像を転送する機能がつきました。運用例をこちらに示します。

まず撮影者がRISを実施します。その時の自己評価によって二つに分かれます。

1つは自己評価1~4では、

- ・画像保留状態にし、検像者が実施内容をチェックし、PACSへ画像を送信する。
ここでは最終画像確認者=検像者になります。

2つ目の自己評価5では

- ・設定時間後は自動でPACSへ画像を送信する。
ここでは最終画像確認者=撮影者になります。

これは検像作業に人員を割けない施設で有効ではないかと考えています。

Although it does not run on regularly, we would like to mention that our institution installed an automatic image transfer function to PACS from the image checking system.

This slide shows how this function works.

The operation branches into two, according to the self-evaluation by the radiographer.

One is that of 1-4

All the images are to be suspended waiting for the administrator to accept and transmit to PACS.

In short, the last check is done by the administrator.

The other is that of 5

The image is automatically transmitted to PACS in a period of time.

Note that the amount of time can be set by users.

In short, the last check is conducted by those who take images.

This function may work well especially in institutions without sufficient medical staff to spare for medical image management.

Discussion

- As expected, so many **check items** have been turned in from each modality. It should be essential to clarify the objective to **slim-down the check-points** to fit limited space on the display.

We also should see to it that **the points** be arranged in proper order to **increase the efficiency**.

- After this, **recording the number of X-rays and the amount of irradiation** can be next candidate for installation in the radiation management tool.

各モダリティの項目洗い出し時点では、多種多様な要望により多くのチェック項目が寄せられました。

しかし項目数には限度が有るため、目的を明確にし、項目数の絞り込みを行う必要がありました。またマウスの移動を少なくし、入力の手間を簡略化するため、チェック項目の画面配列についても工夫が必要であると考えます。

今後は、再撮影回数の把握と患者の被ばく管理についてなど、検像システムに機能の追加が出来れば良いと考えています。

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After this, recording the number of X-rays and the amount of irradiation can be next candidate for installation in the radiation management tool.

Conclusion

We concluded that
medical image management referring
to patients' condition at medical test work
very well.

撮影時の患者状態を加味した検像作業については十分満足がいく結果となりました。

We would like to conclude that medical image management referring to patients' s condition at medical test work very well.



마지막까지 경청해 주셔서 감사합니다



Thank you for your attention.