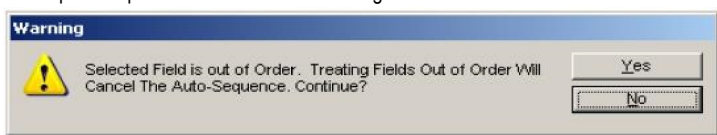


Alert Problems: an issue in Radiotherapy ?

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Introduction

The ECRI Institute is an independent, nonprofit organization that researches the best approaches to improve safety, quality and cost-effectiveness of patient care. Each year the ECRI (www.ecri.org) publishes a list of top 10 risks within the health care sector. This list shows that for a number of years "alarm management, hazards and alarm integration technology" is one of the top 10 security problems. Given the dominant human-technology relationship within the radiotherapy, we know that this issue also applies to the radiation therapy. Among other things the overkill of reminders/pop-ups/warnings and related warnings-fatigue is seen as a growing risk. This is very recognizable in a radiotherapy setting. In the Dutch PRISMA-RT collaboration this topic is been picked up with the aim of understanding the issues and their relevance and looking for opportunities for improvement.



Method

The purpose of the study is advising on reliable alert notifications at convenient and risky moments. This should be presented in an adequate manner so users know how to act. 3 Dutch radiotherapy institutes namely MAASTRO clinic, LEIDEN UNIVERSITY MEDICAL CENTER and UNIVERSITY MEDICAL CENTER UTRECHT have searched in their incident reporting database for related incidents on alert-relevant notifications.

The framework items for the alert research are:

1. the overkill of reminders/pop-ups/warnings
2. the lack of pop-ups
3. in the linear accelerator process environment.

In addition, the alert reports were divided in categories:

1. alerts where insufficient organizational embedding, including alarm fatigue/shifting boundaries
2. no alert was presented, but it was desirable
3. unclear alert for user
4. alerts which consequence not directly visible/recognizable but high risk.

Furthermore, a tally sheet was introduced to measure the number of alerts per patient and the related (re) action (accept, override/initials, report it to, stop process).

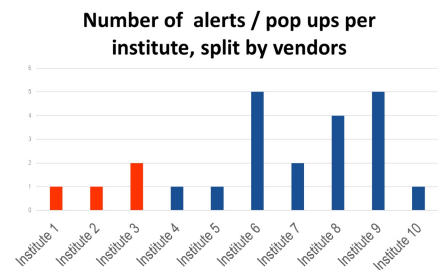
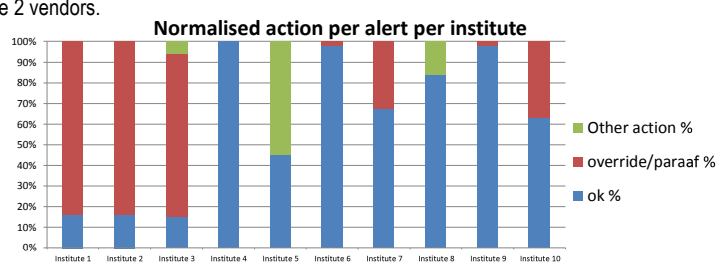
This sheet was distributed among the members of the PRISMA-RT collaboration (radiotherapy institutes in the Netherlands working together in incident reporting). www.prisma-rt.nl

	Necessary action			
	No action	Override / registration	Report to	Stop proces
Pop-up / alert without any specific action				
Pop-up / alert which indicates irregularity				
Pop-up / alert which indicates an technical problem				
Pop-up / alert due to interruption				

Results

Among the three institutes there were less direct related alerts recognizable in de incident reporting databases. Most alerts related to incidents were reported in a technical database for technicians and had no major clinical impact.

10 Radiotherapy institutes have the peat procedure performed and shared their data. The project group has received and proces sed the data. Although variations were in numbers of pop ups in relation to manufacturers recognized, it turns out that all the institutions noticed between 1 to 5 alerts per patient treatment. Hereby the problem was collectively recognized. What is also striking, is the difference of supplier of equipment. There are 2 vendors in Netherlands. The comparison shows that the amount of alerts differs per vendor. Also the associated actions varies between the 2 vendors.



Conclusion

Alerts problems are not being reported in the different incident reporting databases. That does not mean that alerts are not an issue for the radiotherapy! The opposite is more likely. The number of alerts varies from 1 to 5 per patient treatment. What stands out is the difference between the two vendors. Also some radiotherapy centers with the same vendor differ. Apparently institutes can also affect the number of alerts settings. In addition, institutions have to formulate policy how to deal with types of pop-ups, alerts. This is certainly not at each institution established. In reality more than thousands of different pop-ups occur in the software of a linear accelerator. So it will be unthinkable to overcome everything in clear manuals and procedures. But pop-ups must not act arbitrarily. A challenge for the institutes.

References

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