

Automation for Reliable and Thorough Weekly Chart Checks

Jameson Baker, PhD



Weekly Chart Checks?




THE IMPACT OF TREATMENT COMPLEXITY AND COMPUTER-CONTROL DELIVERY TECHNOLOGY ON TREATMENT DELIVERY ERRORS

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- 20 years ago treatment complexity was a concern
- Treatment deliveries progressed beyond what we can verify manually

RETHINK OUR ROLE

Checklist



- Aviation has an excellent safety record
- Radiation Therapy has > 1000X more severe events

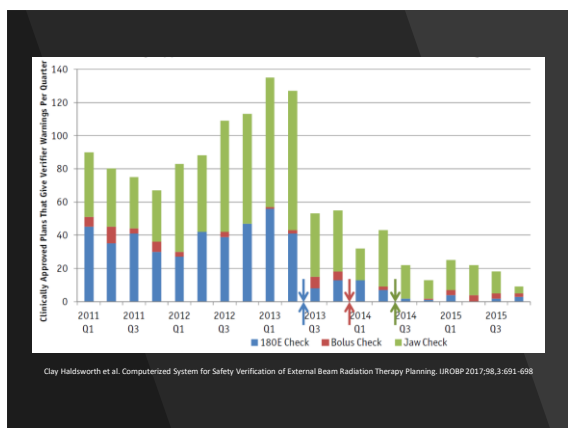
HOW SAFE IS SAFE? RISK IN RADTHERAPY
DR. C. FORD, Ph.D., and STEPHANIE TUREZAN, M.D.

- Why? Repetitive tasks

What can we do?

More Than a Tick Box: Medical Checklist Development, Design, and Use
Barbara K. Burton, PhD,* Anna Clebone, MD,† Key Dismukes, PhD,* and Keith J. Ruskin, MD†

- Do not force people to act like computers
- Automatically do the repetitive tasks
- Allow people to be more investigative



What Does Automation Change?

- No manual number comparison
- Many checks are completed daily
 - Events can be less severe
- Increased safety
 - More reliable
 - Time savings allow a more thorough analysis

Where do we go from here?

- Automated chart checks are:
 - “home grown”
 - Limited to larger institutions
- Need commercial products
 - TG 275 as a guideline
- Expand our view of what to check

Monitoring Patient Dosimetry

Monitoring Dosimetric Impact of Weight Loss With Kilovoltage (KV) Cone Beam CT (CBCT) During Parotid-Sparing IMRT and Concurrent Chemotherapy

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SafetyNet: streamlining and automating QA in radiotherapy

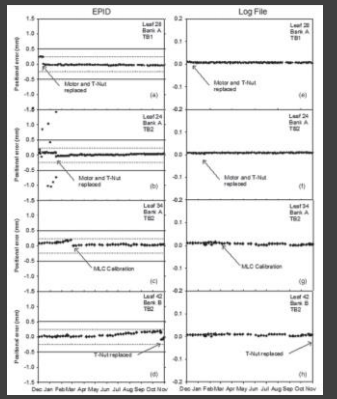
Scott W. Hadley,^{1*} Marc L. Kassler,¹ Dale W. Litzenberg,¹ Choonik Lee,¹ Jim Irwin,¹ Xiaoping Chen,¹ Eduardo Acosta,² Grant Weyburne,¹ Wayne Keranen,² Kwok Lam,¹ Elizabeth Covington,¹ Kelly C. Younge,¹ Martha M. Meluszak,¹ and Jean M. Moran¹

Toward adaptive radiotherapy for head and neck patients: Feasibility study on using CT-to-CBCT deformable registration for “dose of the day” calculations

Catarina Veiga, Jamie McClelland, Syed Moinuddin, Ana Lourenço, Kate Ricketts, James Amkath, Marc Modat, Sébastien Durrain, Derek D’Souza, Gary Royle

MLC Monitoring

A. Agnew et al. Monitoring daily MLC positional errors using trajectory log files and EPID measurements for IMRT and VMAT deliveries. Phys Med Biol. 2014; N49-N63



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