Establishing a Culture of Safety in a Radiotherapy Department

Mary Coffey
High technology – better outcomes?

“Radiation offers new cures and ways to do harm”
(Walt Bogdanich, N.Y. Times)
High technology – better outcomes?

- May alter fundamental staff responsibilities
- May instill a perception of infallibility
- Challenges some longstanding approaches to QA
  - Review and revision of practices

- Lawrence B. Marks et al 2011)
High technology – better outcomes?

- Suboptimal quality leads to suboptimal outcomes
  - Non-compliance to protocol in clinical trials
    - Holly Davidson et al 2014
  - TROG paper – Critical impact of radiotherapy protocol compliance and quality in the treatment of advanced head and neck cancer  Peters et al 2010
Creating a Safety Culture

- Patients have a right to expect high quality treatment delivered in a safe environment
  - Moral and ethical responsibility to actively address safety issues in radiotherapy
  - Create an environment of openness and transparency where safety is a priority for all
Creating a Safety Culture – a challenge

- Blaming individuals or organisations
- Counting or publicly reporting errors
- Malpractice claims

- Have not improved patient safety
  - Youngberg and Hatlie (The patient safety handbook)
Creating a Safety Culture

- Radiotherapy is complex and requires input from many different personnel
  - Within the radiotherapy department
    - All groups have a broad understanding of the processes involved
    - Each group has specific expertise, knowledge and understanding of their part of the process
Creating a Safety Culture

- Radiotherapy is complex and requires input from many different personnel
  - No group has the absolute knowledge and expertise in all aspects of radiotherapy preparation and delivery or non-radiation related safety
- Safety management should integrate all perspectives
Creating a Safety Culture

• Has a focus on system improving
  ◦ Everyone can identify areas for improvement
• Acknowledges that there is always potential for incidents/errors/accidents
• Encourages reporting and learning from errors
Creating a Safety Culture

“The product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of an organisation’s health and safety management......

Creating a patient safety culture is a critical component of any type of safety improvement program”

Agency for Health Care Research and Quality
Creating a Safety Culture

- Must be supported by management who must recognise its value
- It must fit with the culture of the organisation and will often necessitate attitudinal change
- Must integrate rules-based and ethics-based aspects as appropriate
- Will enhance organisational reputation
Creating a Safety Culture

- Includes assessment and analysis of:
  - Organisational culture
  - Communications / interfaces
  - Protocols / Procedures / Practices
  - Adequacy of resources
  - Human factors
    - Staff numbers
    - Working hours
    - Education and training
Creating a Safety Culture

- Should not generalise but look at the specifics of each situation
  - Organisational structure: hierarchical, democratic
  - People: role, qualifications, contractual arrangements
  - Tasks and work processes – types, complexity, interdependencies
  - Technology: complexity, networking
  - External relationships
  - (modified from Grote)
Creating a Safety Culture

- Acknowledges issues inherent to teams and teamwork and the difficulties staff encounter in:
  - Unequal input into decision making processes
  - Identifying areas for improvement
  - Highlighting errors by themselves or others
  - Resolving difficulties
  - Openness of discussion
Creating a Safety Culture - Collaboration leads to success

A cohesive team

Radiation oncologist  Medical Physicist  Radiation Therapist
Creating a Safety Culture - Collaboration leads to success

- Policy of morning meetings / ‘huddles’/ safety rounds
  - Attended by all staff disciplines
  - Patients for defined procedures discussed
    - All potential issues raised avoiding duplication, errors, incidents, inefficiencies etc.
  - Identifying improvements based on the previous days experience
  - Social and cultural function
    - Fosters easy communication and mutual respect amongst all team members
Creating a Safety Culture - Collaboration leads to success

• Stop / Time-Out / Pause for Cause / Delta
  • Time-Out procedures were found to be effective in reducing the number of errors in radiation therapy (Hendee and Herman 2011)
  • “See it, Say it, Fix it” (Srinath Sundararaman et al. 2014)
    • Delta – code word for halt
  • Called by any member of team at any time
Creating a Safety Culture - Collaboration leads to success

- Keep everyone up-to-date
  - Share knowledge
    - Feedback / presentations on courses/conferences attended
    - Attending lectures/patient review sessions etc. within the department and feeding back to the team
    - Reading journal articles and sharing the findings
    - Considering ways of improving the service
Creating a Safety Culture – support of management

- Support of management is essential
  - Raised awareness and appreciation of the importance of safety management issues
  - Quality improvements arising from the findings of incident analysis can be put in place without unnecessary delay
Creating a Safety Culture – Raising Awareness

- Observation and increased awareness
  - Observing in detail what happens in the clinical setting (for eg.)
    - How closely are policies and procedures followed?
    - How well maintained is the area?
    - How are staff communicating?
    - What is the condition of the working environment?
    - What is the condition of the equipment and accessory equipment?
Creating a Safety Culture – Raising Awareness

http://teachersreflect.files.wordpress.com/2012/11/watching-you.png

Creating a Safety Culture - Raising awareness and cultural change

- Identification of system defects that can be addressed
- Greater involvement by all professionals
- More care and attention in the daily practice
- Increased reporting of incidents and near incidents
Creating a Safety Culture – Continuous improvement

• “Do it better, make it better, improve it even if it isn’t broken, because if we don’t we can’t compete with those who do” (Kaizen)
Creating a Safety Culture – Continuous improvement

- Process mapping to identify and remove inefficiencies (LEAN system)
- Use of checklists
  - Ensure they mirror the pathway exactly
Creating a Safety Culture – Continuous improvement

• Eg. Anyone could book a patient in for a CT scan
  • Too many errors or problems such as patients not correctly prepared for examination
  • System evaluated
    • Now only the CT simulation therapists can schedule/book patients
    • Common terminology used
    • Pre-printed labels with barcodes and unique identifiers
Creating a Safety Culture – Continuous improvement

- Protocols / Procedures / SOPs
  - Should be written by all involved staff disciplines
  - Should be scientifically sound, evidence based where possible, unambiguous and relevant

- Holly Davidson et al 2014
Creating a Safety Culture – Continuous improvement

- Protocols / Procedures / SOPs
  - Should include a time frame for completion of tasks and checks
  - Clearly defined roles and responsibilities
  - Regular review and update (avoid ‘work arounds’)}
Creating a Safety Culture – Embracing Change!
Creating a Safety Culture – Embracing change

- A major source of risk
  - Multi-faceted
  - Creates new paths for failure
  - Places new demands on staff
    - Revising their understanding of these paths is an important aspect of work on safety
Creating a Safety Culture - Working within an appropriate time frame

- “A basic premise is the acknowledgement that because we are human, we will try to do things fast, we will forget to do things that are not required, and we will make errors”

- Marks and Chang 2011)
Creating a Safety Culture - Working within an appropriate time frame

- Rushing is a contributory factor in errors
- Adequate time to complete all the necessary procedures
- Management need to appreciate realistic time frames (New York incident)
Creating a Safety Culture - Working within an appropriate time frame

- Physician performance during RT planning declined with increased workload levels and cross-coverage conditions
- IMRT associated with a lower rate of incidence
- Fewer fractions – higher incidence

- Gary V. Walker et al 2014
Creating a Safety Culture - Working within an appropriate time frame

- Majority of Risk Probability Number significant human failure modes...
  - Attributable to team members rushing though workload steps, rather than high difficulty of the workflow steps
  - Errors of omission and accuracy

(Safety and feasibility ... improvement of a novel rapid – tomotherapy-based radiation therapy workflow by failure mode and effects analysis: Ryan T. Jones (in press))
Creating a Safety Culture - Working within an appropriate time frame

- Errors of accuracy were avoided by increasing the amount of time available for completion of the most error susceptible workflow steps – steps documented on checklist
  - Time for the overall workflow increased from 45mins to 90mins

(Safety and feasibility ... improvement of a novel rapid – tomotherapy-based radiation therapy workflow by failure mode and effects analysis : Ryan T. Jones (in press))
Creating a Safety Culture - Working within an appropriate time frame

- Staff levels should reflect the workload and complexity of the tasks undertaken
Creating a Safety Culture – Incident Reporting

- A Safety Culture
  - Encourages reporting and learning from incidents and near incidents
    - Incidents and near incidents can be analysed to help to understand how and why they happened and how they can be avoided or minimised in the future
Creating a Safety Culture – Incident Reporting

- Reporting and Learning from incidents and near incidents
  - Most incidents or errors are minor
  - Reflect a real opportunity for learning
  - The basis of voluntary reporting systems
  - Reporting systems (safety information systems)
  - Demonstrates transparency
  - A department putting safety as a priority
  - A department engaged in active learning
5 year review of incident reporting in a department

- Increased awareness of patient safety
  ◦ Decrease in the number of actual incidents and their severity
  ◦ Good support of senior management and collaborative inter-professional approach
  ◦ Break down professional barriers (one of the main benefits)
  ◦ Care to avoid apathy

- Brenda G. Clark et al 2013)
5 year review of incident reporting in a department

- Main causes of incidents
  - Communication issues
    - Unclear
    - Inadequate
    - Misunderstood
    - Conflicting
  - More recently with planning issues
    - Inadequate
    - Conflicting priorities
    - Personnel availability

- Brenda G. Clark et al 2013)