

## Two Year Experience with **LEAN Thinking** In Radiation Oncology @ Baylor Scott and White Health

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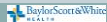
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## My Lecturing Objective

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- **To convince**
  - Lean methodology is an 'idea' creating machine
  - Lean thinking
    - Simple & effective
    - Improves patient care & satisfaction
    - Staff engagement & satisfaction
    - Reduces cost & improves revenue
- **To Inspire all of you**
  - with our stories
  - to encourage become lean thinker and leaders

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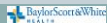
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## Radiation Oncology Department (CTX)

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- **Clinical Sites**
  - 3: Temple, Killeen, Waco
- **Team**
  - Number of Physician: 8    Number of Dosimetrist: 6
  - Radiation Oncologist: 7    Number of Nurses: 6
  - Number of Therapist: 12
- **Patients**
  - Approx. 1500 New patients /year
- **Machine**
  - 4 Linacs all IGRT ( 1 Novalis and 1 Truebeam)
  - 2 HDR units ( 1 Varian and 1 Nucletron)
  - 4 CT Scanners ( 3 GE and 1 Siemens)
- **Clinical**
  - HDR, LDR, SBRT, SRS, VMAT Programs
- **Education Programs**
  - Medical Physics Residency Program ( CAMPEP )
  - Radiation Oncology Physician Residency Program (ACGME)
- **Research Program**
  - Detector and Real-time Image guidance
  - Process Science, Quality and Safety Research
  - Automation, Data Analytics and visualization

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## Our Story

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- **Lean Instructors emphasized**
  - Lean is not a tool
  - Lean is not a check list item
  - Lean is not a project
- **Lean is a way of thinking which needs a culture to thrive**

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## What We Lean Thinkers Do at BSW?

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- **Gemba Walk**
- **Daily Huddles**
- **Visual controls**

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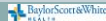
## How to Gemba ?

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- **Go See**
  - *Purpose, Process, and People*
- **Ask Why**
  - *What did you look for when you went to the gemba?*
- **Show respect**
  - When going to see, lean thinking mandates (yes, mandates) that we show respect to all the people

Which leads to the first rule of gemba walking: "Do no harm!"

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### Gemba Walk (examples)

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- Physicist of the Day
- Chairman of the Department – Rounds
- CMO and CEO Gemba Rounds
- Lead Therapist Rounds
- Dosimetrist Manager Rounds

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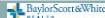
### Examples in Our Operation

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- No Daily QA completed on time, first patient delayed
- LINAC chiller issue
- Stuff left on the table
- Cable untwined
- Patient starting in 30 minutes, treatment not approved
- IMRT QA not done for early morning patient
- IT networking & server down issue
- PDF issue
- Staff day off and how that affect things

LONG LIST

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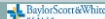
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### Daily Huddle

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- Example – Physics Huddle ....Every Day 10 minutes stand up huddle
- Day’s scheduled events or noteworthy events of day before
- ONE problem that was found in Gemba or otherwise and seek for an idea
- JUST-DO-IT 
- Keep metrics on huddle board, check and act accordingly

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### Just Do it – What Does It Mean

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- Don't wait to implement
- Pen and Paper would do it
- Don't need a nice and fancy system
- Data Collection and analytics for quality metrics

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### Huddle Boards Examples

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- Physics and Dosimetry Huddle Boards
- Administrative Board
- Nursing Huddle Board
- Therapist Huddle Board
- Residents huddle Board
- Satellite Clinic Huddle Board

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### Huddle Board - Examples

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Fig. Therapist Huddle Board

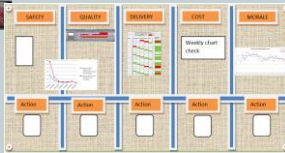


Fig. Physics & Dosimeterist Huddle Board

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### Kaizen Project ( Continuous Improvement)

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- **Examples**
  - Reduced CT Sim to treatment timeline
  - Reduced Patient rescheduling for SRS
  - Real-Time LDR Prostate Seed Implant Lean Approach vs Pre-plan Implantation
  - Reduce cancellation and billing rejection

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### Value Stream Mapping

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#### SRS Patients w/o delays

Month	% cases w/o delays	Goal
Jan-Mar	25%	95%
April	15%	95%
May	45%	95%
June	25%	95%
July	35%	95%
Aug	55%	95%
Sept	40%	95%
Oct	38%	95%

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### Initial Problem Statement

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#### Reasons for Delays Total

Reason	Count
Addl consults...	16
CT Down	7
Family Requests	8
Plan not ready	10
Hospitalized	7
Pt slow to diele	7
Pt Noncompliance	7
Pt changed to...	5
Fiducials not ready	5
Insurance issues	6
Pt condition	7
Anes. Scheduling	2
Left w/o being seen	1
Physician out	6
Transportation...	3
Neurosurg...	2
Doctor Request	1
IR Scheduling	1
Ortho/FENT Sched.	1

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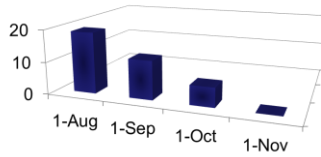
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## Rescheduling Rates

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RSR 5/2012- 8/2012 16/144(14.5%)  
RSR 11/2012- 0/13(0%), 12/2012- 1/18(0.05%)




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## Our Ideas and Kaizen Success

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- **Top 3 success Ideas**
    - Physics Hotline
    - Physician Contour Delays
    - New Start Email List
  - Pre Authorization insurance for IMRT patients – Business Office
  - Reduced SRS rescheduling rates
  - Increase capacity on machine – Additional changing room
  - Rapidarc vs IMRT
  - **Top Kaizen success**
    - SRS service
    - LDR & HDR services are streamlined
- .....many more

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## Conclusion

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- **Lean thinking is simple & effective**
- **Lean thinking**
  - Improves patient care & satisfaction
  - Staff engagement & satisfaction
  - Reduces cost & improves revenue




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## Acknowledgement

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- Contact
  - Sunita Boddu PhD
  - Email : [sboddu@sw.org](mailto:sboddu@sw.org)
- Coming soon: [leanradonc.org](http://leanradonc.org)

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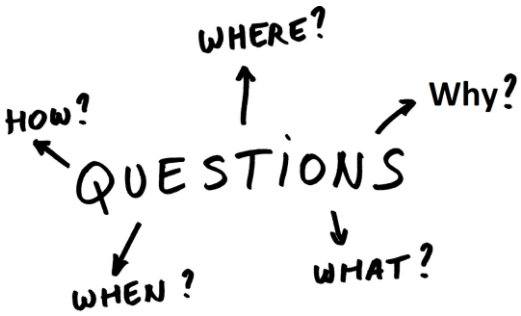
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