Verification of Patient Treatment Accessories and Posture

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Conflict of interest

- None

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Treatment Deviation

- A non-trivial percentage of radiation therapy treatment deviations are related to patient setup errors.

Category	Number	Percentage
Physician order deviation	21	19.4%
Treatment planning deviation	26	24.1%
Treatment delivery deviation	61	56.5%
Total	108	100%

University of Utah 8-year retrospective study

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Patient setup errors

- Patient ID error
- Patient treatment accessory error
- Patient posture error
- Patient treatment position error

Improving the safety and efficiency of patient setup
and treatment

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IDENTIFY System
(HUMEDIQ)

- ➢ Biometric authentication (palm reader)
- ➢ Radiofrequency identification (RFID)
- ➢ Surface matching

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Unique solutions target patient setup errors

- Patient ID error   ←   Palm reader
- Patient treatment accessary error   ←   RFID
- Patient posture error   ←   Orthopedic surface
- Patient treatment position error   ←   Surface guidance

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Patient ID

- Face photo
- Biometric palm reader

  an improvement over the previous patient ID procedure
  - ➢ face photo
  - ➢ date of birth

  especially for non-English speaking patients

RFID for patient-specific setup devices

- Presence of immobilization and accessory devices
- Correct location of index-able immobilization and accessory device

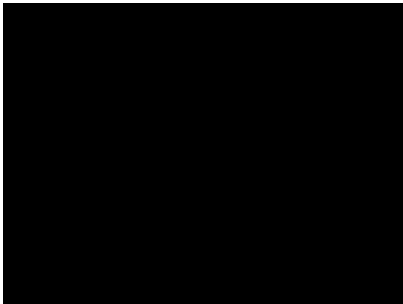Direct verification approach VS assuming therapists had followed the Setup Instructions correctly.

Orthopedic patient setup

- Accurate initial patient position and orientation at loading position
  - ➢ patient self-positioning
  - ➢ color-coded video feedback (agreement of real-time surface with simulation surface)
  - ➢ ceiling mounted screen display
- Noticeable improvement in setup efficiency by patient self-positioning

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SGRT

- Similar function as AlignRT and C-Rad
  - ➢ patient treatment position body surface matching (CT simulation body contour DICOM from treatment planning system or captured body surface as reference)
  - ➢ Intra-fractional patient motion monitoring during IGRT imaging and treatment delivery.
  - ➢ DIBH application
    - -- handheld coaching monitor attached to the treatment couch for patients self-adjust breathing levels

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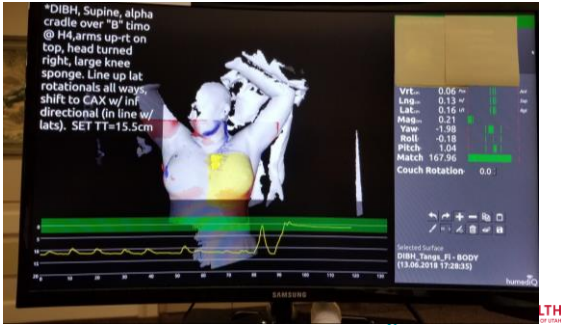
Technology advantages

Combination of biometric, RFID, and surface matching enhancing

> safety

> efficiency

> treatment deviations prevention

Treatment deviation study in Utah

A retrospective study at University of Utah

- assess the potential of Identify technology to prevent treatment delivery related deviations
- over 8-year time frame
- 79% of treatment deviations regarded as preventable by Identify system

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Deviation prevented by HumediQ IDENTIFY	Number	Percentage
Likely	48	78.7%
Not likely	13	21.3%
Total	61	100%

Thank You!