

LXIII CNF 2020

Advancing RT QA

Latest Solutions from Sun Nuclear

We enable **healthier lives**
by improving the avoidance,
detection & treatment of cancer.

We deliver Patient Safety
solutions for **Radiation Therapy**
& **Diagnostic Imaging.**

Independence provides
unbiased assurance
systemic & random
issues will be caught

Integration provides
optimal workflow
efficiency &
standardization



EMR: System-Wide Patient Record



OIS/R&V: Radiation Oncology Patient Record



Treatment Planning & Delivery Ecosystem



Quality Management Platform

SunCHECK™

800+ Sites Worldwide



Platform

- Comprehensive, Automated QM Platform
- Single, Centralized Database
- Scalable, Vendor-Neutral Clinical Integration
- Accessible from Anywhere



Patient

- Plan Quality Verification
- Secondary Dose Calculations
- Phantomless & Array-Based Pre-Treatment QA
- In-Vivo Monitoring Throughout Treatment Course



Machine

- Full Task Group-Based Test Suite
- Automated Data Collection & Analysis
- Measurement Device Connectivity & Control
- Network-Wide View of Linac/CT Status

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INTRODUCING PlanCHECK™

- Automation for one of Medical Physics' most time-consuming tasks
- Simplification for an essential step requiring experience and expertise
- Integration of Dosimetric, Plan Parameter and Deliverability Checks into complete, independent Quality Management solution

**Physics and
Dosimetric Checks**
PlanCHECK™

**Secondary Dose
Calculations**
DoseCHECK™

**Pre-Treatment
QA**
PerFRACTION™

**In-Vivo
Monitoring**
PerFRACTION™

Complete automation

Dosimetric Checks

Physics Check

The screenshot displays the SunCHECK interface for a patient named Rodgers, Dieron. The patient's information includes gender (M), MRN (ROQS-09), status (Active), dose (68 Gy), site (General/Unspecified), and date of birth (11 SEP 1955, 64 yrs). The treatment plan is PC_PROST_VMAT with a total prescription dose of 68 Gy. The interface shows a 'Dosimetric' section with a table of DVH data and a corresponding graph.

STRUCTURE NAME	MIN	MAX	MEAN
BODY - PTV68	0.04 Gy	81.31 Gy	10.86 Gy
PTV_56	52.00 Gy	71.44 Gy	63.71 Gy
PTV_68	63.46 Gy	73.21 Gy	69.47 Gy
PTV56 - PTV68	52.00 Gy	70.06 Gy	63.07 Gy
Bladder	7.20 Gy	76.50 Gy	41.50 Gy
BODY	0.04 Gy	81.31 Gy	11.44 Gy
Lt femoral head	0.76 Gy	42.07 Gy	13.73 Gy
Lymph Nodes	55.59 Gy	70.76 Gy	64.16 Gy
Penile_bulb	4.85 Gy	9.80 Gy	6.80 Gy
POST_RECTUM	1.29 Gy	55.07 Gy	24.09 Gy
prostate_bed	66.75 Gy	71.87 Gy	69.40 Gy

Compatible with multiple TPSs via scripting*/DICOM transfer

Complete automation
Dosimetric Checks
Physics Check

The screenshot displays the SunCHECK interface for a patient named Rodgers, Dion. The main section is titled 'Dosimetric' and shows a table of checks for a 'Prostate 68Gy' template. The table has columns for Structure, Metric, Plan Goal Range, and Result. Each row represents a specific check, such as 'PTV_68' or 'Bladder', with a visual progress bar indicating the current value relative to the goal range.

STRUCTURE	METRIC	PLAN GOAL RANGE	RESULT				
TEMPLATE (60 Gy)	PLAN (68 Gy)	ROI TYPE	TYPE	VALUE	IDEAL	ACCEPTABLE	RESULT
PTV_68	PTV_68	Target	Relative Volume at Dose	V 68.00 Gy	> 97.00 %		97.02 %
PTV_68	PTV_68	Target	Dose to Absolute Volume	D 0.03 cc	≤ 70.89 Gy	< 72.16 Gy	70.19 Gy
PTV_68	PTV_68	Target	Min Dose to Structure		≥ 62.45 Gy	> 60.30 Gy	62.57 Gy
Bladder	Bladder	OAR	Relative Volume at Dose	V 70.00 Gy	≤ 15.00 %	< 20.00 %	5.14 %
Bladder	Bladder	OAR	Relative Volume at Dose	V 65.00 Gy	≤ 25.00 %	< 30.00 %	20.58 %
Bladder	Bladder	OAR	Relative Volume at Dose	V 60.00 Gy	≤ 35.00 %	< 40.00 %	23.69 %
Bladder	Bladder	OAR	Relative Volume at Dose	V 55.00 Gy	≤ 45.00 %	< 50.00 %	27.49 %
PenileBulb	PenileBulb	OAR	Mean Dose to Structure		< 54.50 Gy		54.09 Gy
Rectum	Rectum	OAR	Relative Volume at Dose	V 68.00 Gy	≤ 5.00 %	< 10.00 %	6.06 %
Rectum	Rectum	OAR	Relative Volume at Dose	V 60.00 Gy	≤ 15.00 %	< 20.00 %	12.59 %
Rectum	Rectum	OAR	Relative Volume at Dose	V 55.00 Gy	≤ 20.00 %	< 25.00 %	15.84 %
Rectum	Rectum	OAR	Relative Volume at Dose	V 50.00 Gy	≤ 25.00 %	< 30.00 %	19.26 %
Body	Body		Dose to Relative Volume	D 1.00 %	≥ 0.01 Gy		

Automatically assess performance of plan versus intent

Complete automation
Dosimetric Checks
Physics Checks

The screenshot shows the PlanCHECK interface for patient Rodgers, Dieron. The top navigation bar includes patient information: GENDER: M, MRN: ROQS-09, STATUS: Active, DOSE: 68 Gy, SITE: General/Unspecified, DOB (AGE): 11 SEP 1955 (64 yrs). The main header shows the plan name 'PC_PROST_VMAT' and treatment site 'General/Unspecified'. The 'Physics' tab is active, displaying a table of checks:

Check Category	Task	Criteria	Result
Physics	Plan Id Label	(?)VMAT.*	VMAT
	Photon Heterogeneity	ON	ON
	Maximum Number of CT Slices in 3D Image	≤ 140	90
Contour Checks	Number of Structures Not Fully Contained	0	2 CouchSurface, Couchinterior
	Voxel Volume (cc)	< 20	15.625 2.5 x 2.5 x 2.5
	Structures with Wrong Laterality	0	0 [0 Left] [0 Right]
Deliverability Checks	Total Beams	2	2
	Total Treatment Beams	≥ 2	2
	Total Non-Treatment Beams	≠ 1	0
	Total Non-Zero Couch Angle Treatment Beams	< 1	2
	Total Non-Zero Collimator Angle Treatment Beams	≤ 2	2 Beams(s): 1,2
	Total Zero Collimator Angle Treatment Beams	≤ 1	0
	Unique Isocenters for All Beams	All Fields	Unique Unique (over 2 beams)

Identify deviations with rules-based and user-defined pass/fail results

INTRODUCING
ArcCHECK®
Integration

Array-Based Pre-Treatment QA

- Simplified workflow - no separate QA plan required
- Easy separation of error source
- ArcCHECK measurements included in patients' SunCHECK QA timeline

Simplified workflow

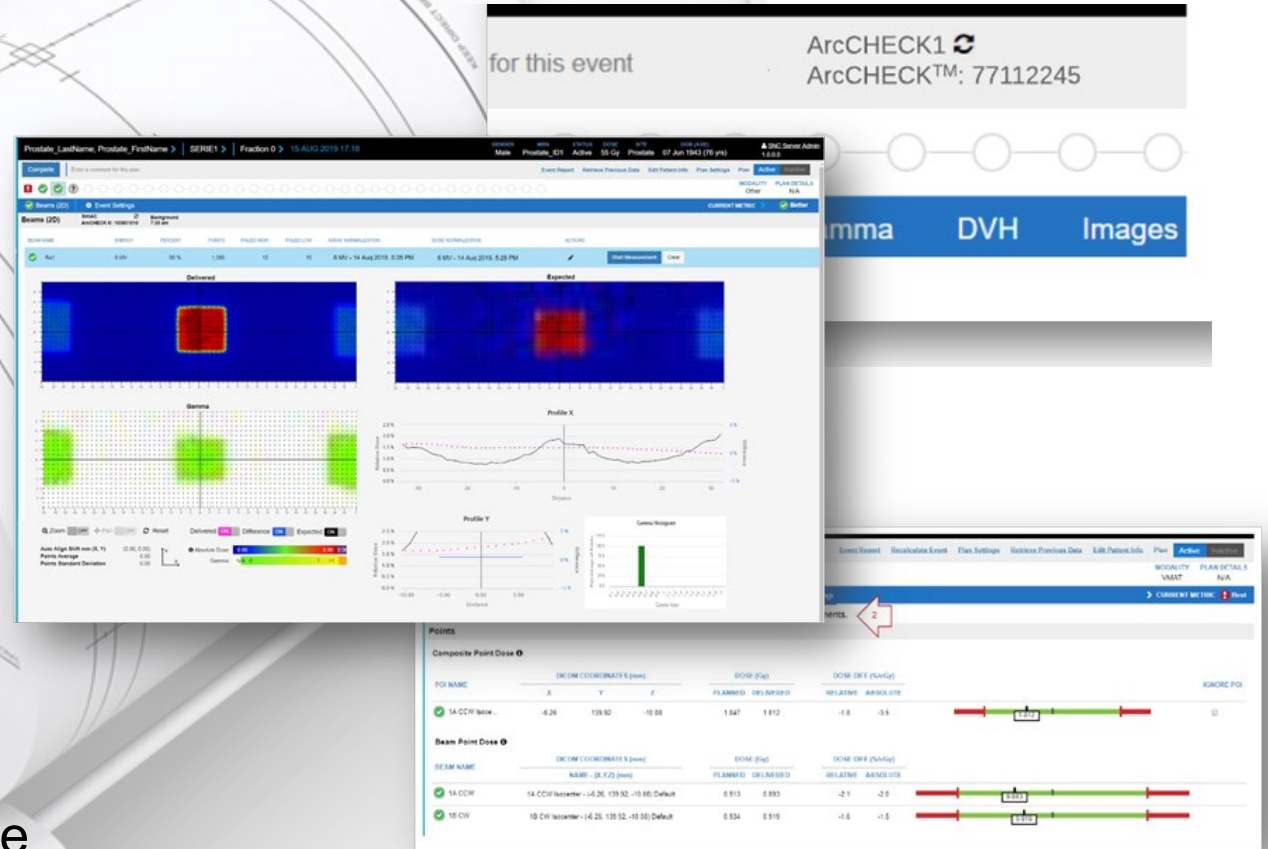
- No separate QA plan needed
- Saves ~30 minutes per patient

Separates sources of error

- DoseCHECK™ highlights algorithm errors
- ArcCHECK highlights delivery errors

ArcCHECK measurements included in patients' SunCHECK QA timelines

- Complete patient-specific QA record possible

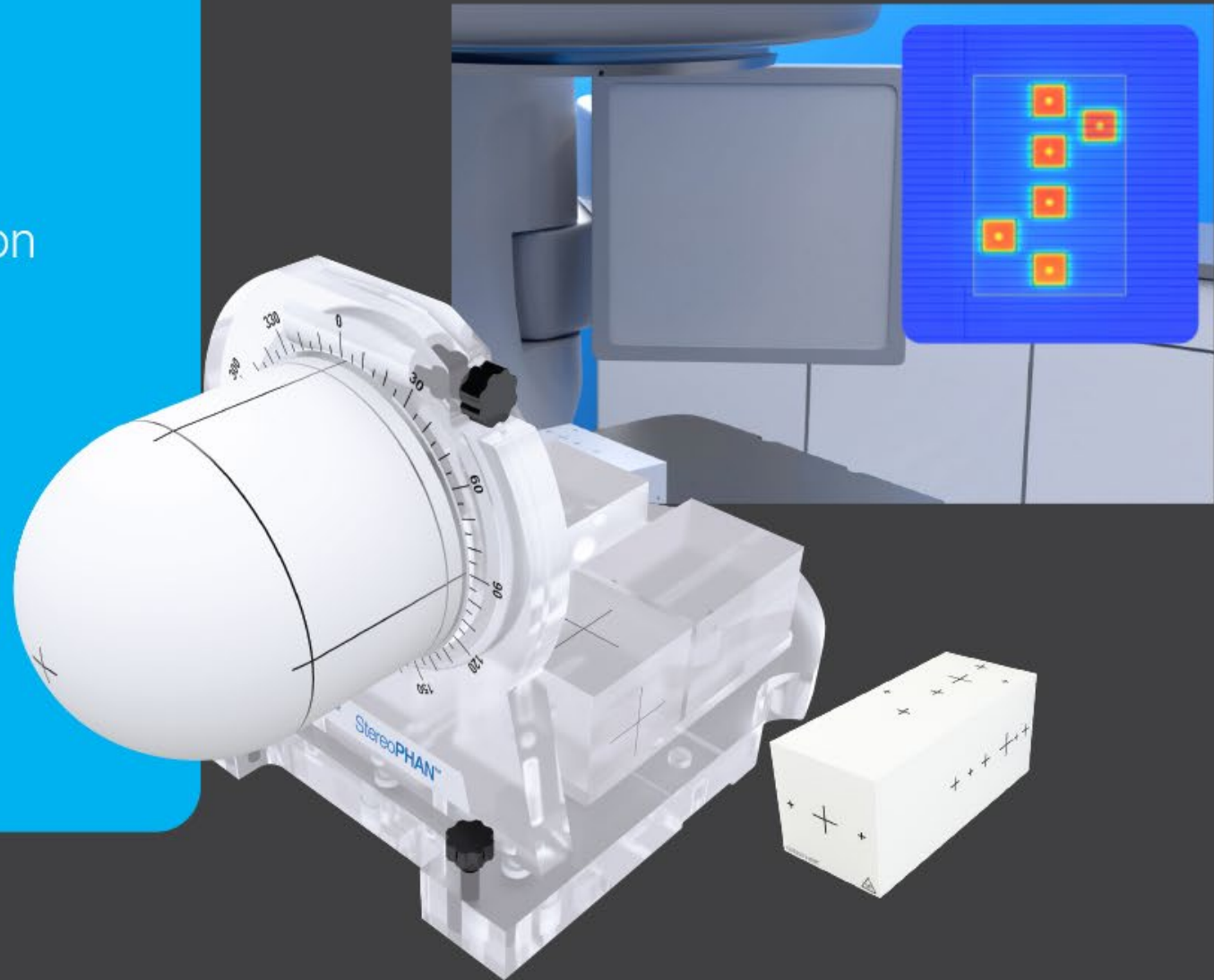


Stereotactic QA

Introducing the MultiMet-WL Cube

for SRS/SBRT Accuracy Verification

- Identify off-axis/rotational sources of error — Gantry, Couch or Collimator — in 6 degrees of freedom
- Elekta Versa HD™ and Synergy® Systems support
- 45 degree couch kick support with error reporting
- Couch and collimator rotational error reporting

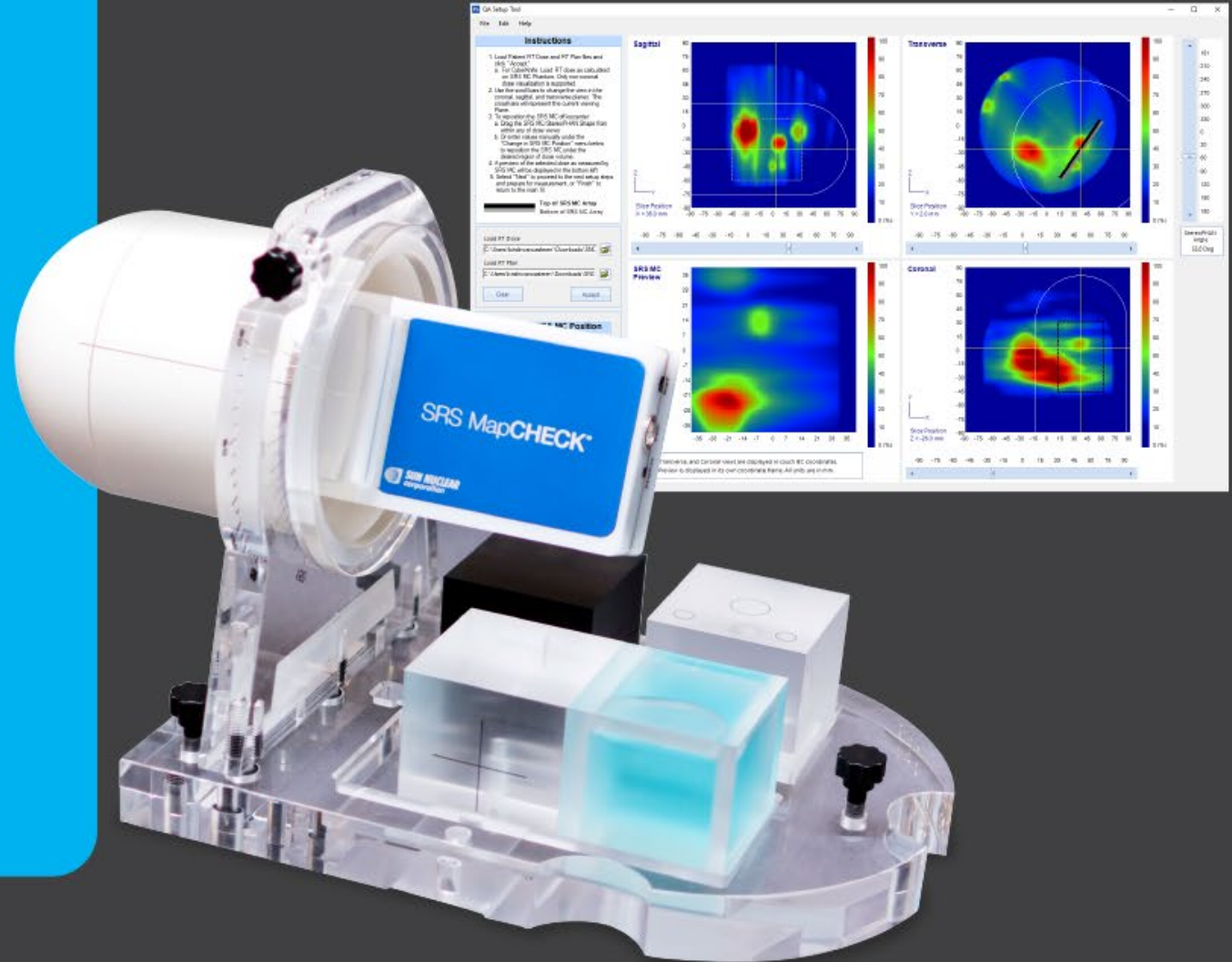


Stereotactic QA

Enhancing SRS MapCHECK™

For Film-less Patient QA

- New QA Setup Tool provides guidance on optimal positioning, particularly valuable for Single-Isocenter Multiple-Target (SIMT) treatments
- Support for delivering vertex fields to the device for 6MV and 10MV, including FFF
- Varian Medical Systems® Halcyon™ System support



Patient Setup // Fixed and Moveable Lasers

Now Available — Sun Nuclear Lasers

Simplify workflows, enhance accuracy and get the support you deserve -- from the QA leader you trust

MICRO+™ | CT SIM+™

Best-in-industry specs
Fits on existing brackets



Daily QA™ 3 & Daily QA™-MR Software Update – v3.1

Coming soon

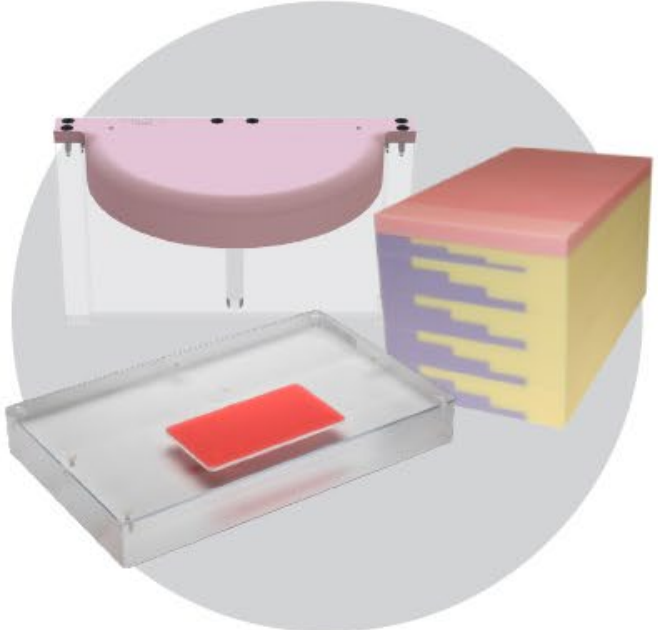
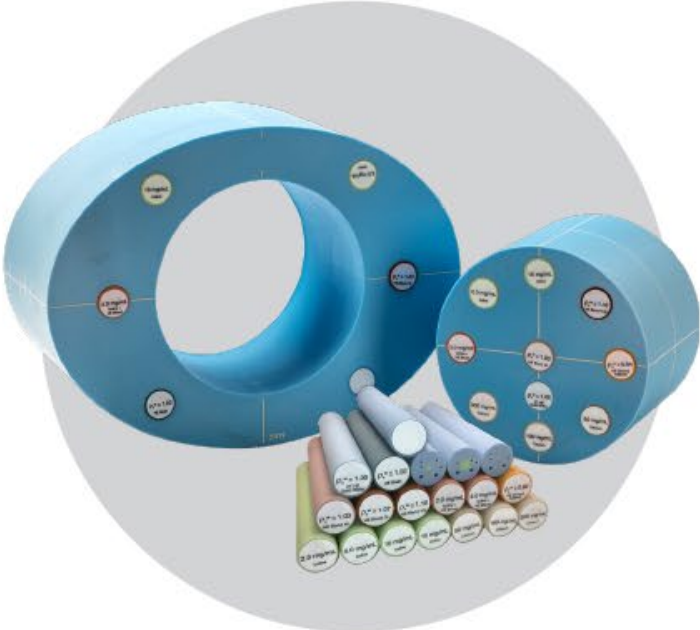
New features:

- Daily QA™ 3 – (FFF) Energy, Shape Constancy and Field Size Shift
- Daily QA™-MR – (FFF) Energy, Shape Constancy and Field Size Shift



Easing New Technology Adoption

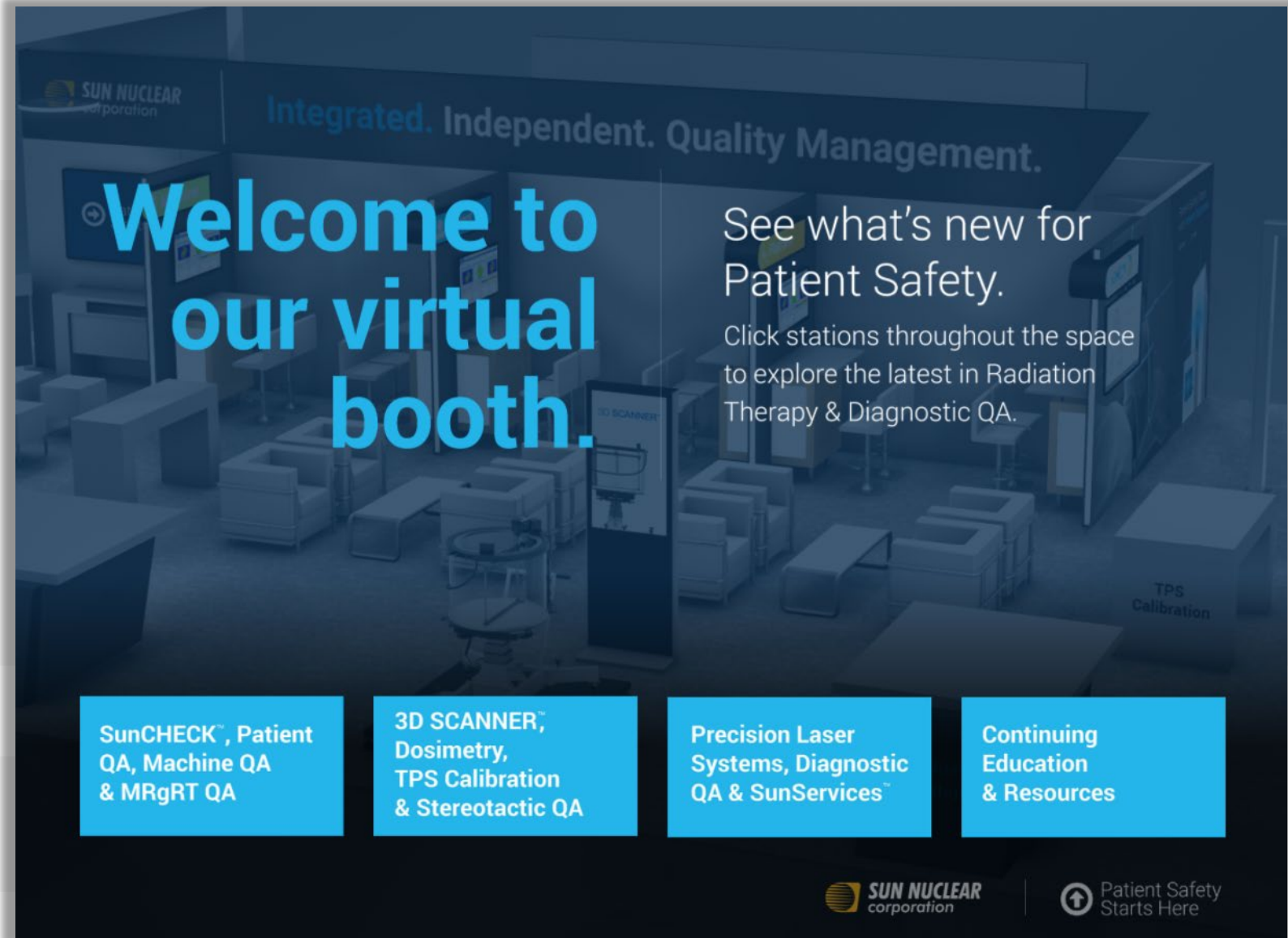
Diagnostic Imaging QA



Please join us, at your convenience, for a closer look at **more new solutions** and helpful resources.

sunnuclear.com/virtual-booth

zarelamarsilikaplan@sunnuclear.com



THANK YOU