

Transforming Cardiovascular Care Through Discoveries in Imaging

SCMR 23RD ANNUAL SCIENTIFIC SESSIONS

How can I Participate in the SCMR Registry?

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Chair, SCMR Registry Committee

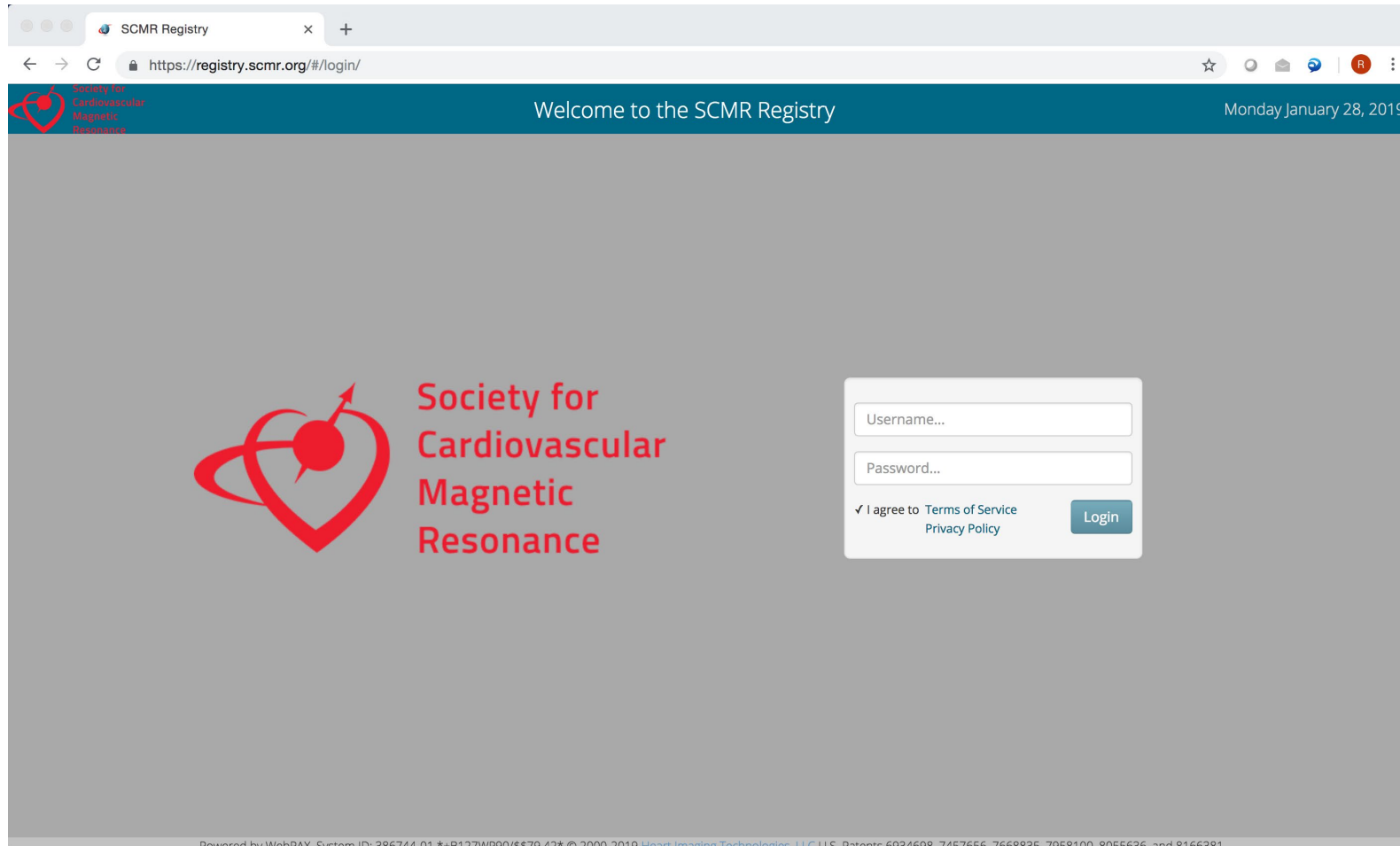
The Ohio State University
Friday, 14 February 2020



History

- The SCMR Board invested resources to start a Global CMR registry in 2014.
- The main goals of the Registry are to:
 - Support the SCMR mission: **To improve cardiovascular health by advancing the field of CMR**
 - Provide a web mechanism for CMR centers to upload de-identified patient data, CMR reports, and images to share for purposes of **research, education, and quality control**
 - Support data access globally by making registry data available to the wider CMR research community
- SPINS trial led by Raymond Kwong demonstrates the power and potential of SCMR Registry research efforts.

The New SCMR Registry Platform



Launched February 2019
<https://registry.scmr.org>

**HeartIT CloudCMR
infrastructure**

**SCMR Registry
Committee and SCMRHQ
manage the registry**

What data are in the Registry?



The screenshot shows the SCMR Registry search interface. The browser address bar displays "https://registry.scmr.org/#/search/". The page header includes the SCMR logo, the text "Welcome to the SCMR Registry", the date "Monday January 28, 2019", and a user profile "Welcome, Orlando Simonetti...". The main content area is titled "Searching For" and shows a search filter for "All Reports" with a language dropdown set to "English". Below this, there are search criteria: "CMR Report" (dropdown), "Diagnosis" (dropdown), "Diagnosis" (dropdown), and "any" (dropdown). A list of cardiac conditions is shown with checkboxes, where "D-Transposition of the Great Arteries" is selected. Below the search criteria are "Cancel" and "Confirm" buttons. The "Results" section shows "62226 Reports, Mortality Rate 9.9%" and "Result Set: All matching reports Vital Status: Any". A table of search results is displayed with columns for Name, Gender, Race, Birth Date, Vital Status, Death Date, Death Source, Study Date, Study Link, Report Link, and Description.

1	Name	Gender	Race	Birth Date	Vital Status	Death Date	Death Source	Study Date	Study Link	Report Link	Description
2	CloudCMR-68859	F	White or Caucasian	1943-01-01	Unknown			2019-01-18	Images	Report	
3	CloudCMR-68853	M	White or Caucasian	1944-01-01	Unknown			2019-01-09	Images	Report	
4	CloudCMR-68651	M	Asian	1990-01-01	Unknown			2019-01-07	Images	Report	
5	CloudCMR-68761	M	White or Caucasian	1965-01-01	Unknown			2019-01-05	Images	Report	

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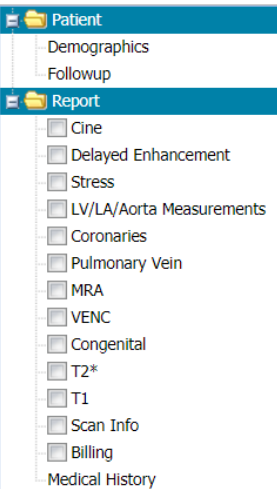
- **Searchable Database currently includes >74,000 cases.**
- **Additional sites with contracts pending will soon bring the total to 100,000**

What data are in the Registry?



SCMR

Society for Cardiovascular
Magnetic Resonance



Layout: New | Original

MRN: 3022-0002-2835-5531
Name: CloudCMR-68918,
Anonymous
DOB: 1967-Jan-01
Scan Date: 2018-Nov-30

Vitals

Height	62 in	157.48 cm	BSA	1.59 m ²	Baseline HR	65 BPM
Weight	130.01 lbs	58.97 kgs	BP	149 / 67 mmHg	Heart Rhythm	Sinus Rhythm

Final Impression:

- A. MILD BIVENTRICULAR DYSFUNCTION (LVEF 52%, RVEF 51%)
- B. NO MYOCARDIAL INFARCTION, SCARRING, OR INFILTRATION.

Summary

Left Ventricle: LV wall thickness is normal. LV cavity size is normal. LV systolic function is mildly decreased globally. Quantitative LVEF 52%. There is no LV mass/thrombus.

Viability: No myocardial infarction, scarring, or infiltration.

Right Ventricle: RV wall thickness is normal. RV cavity size is normal. RV systolic function is mildly decreased globally. Quantitative RVEF 51%. There is no RV mass/thrombus.

LV/RV Septum: The ventricular septum is intact.

LA/RA Septum: There is lipomatous hypertrophy of the interatrial septum.

Left Atrium: LA cavity size is normal. There is no LA mass/thrombus. Incidental note of small LA diverticulum along the superior aspect of the LA (near the left common pulmonary vein trunk).

Right Atrium: RA cavity size is normal. There is no RA mass/thrombus.

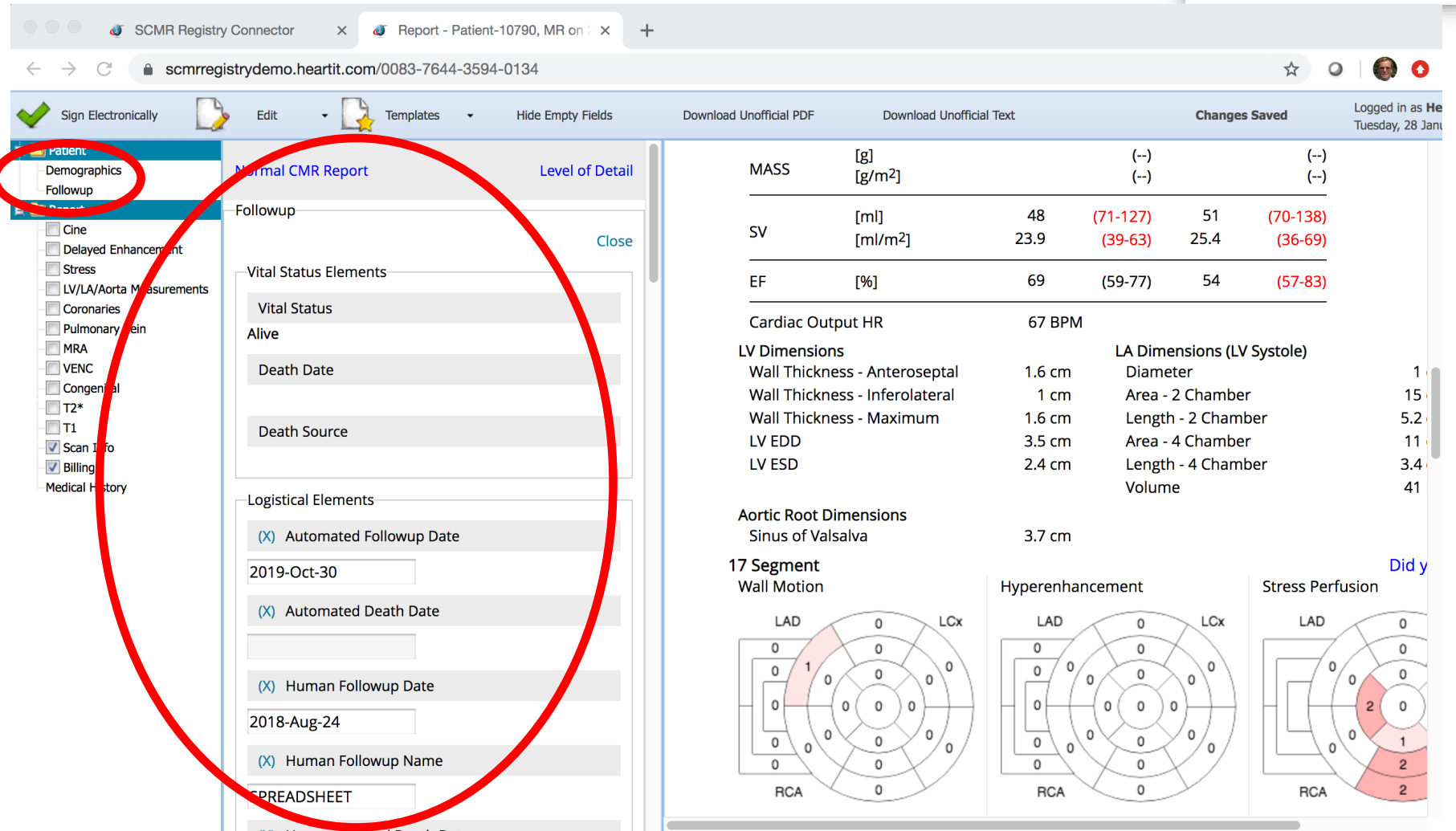
Pericardium: There is no pericardial effusion.

Pleural Effusion: There is no pleural effusion.

Aortic Valve: Aortic valve is trileaflet. There is no aortic stenosis. There is no aortic regurgitation.

Integrated Report data

What data are in the Registry?



Parameter	Unit	Value	Normal Range	Value	Normal Range
MASS	[g]		(--)		(--)
	[g/m ²]		(--)		(--)
SV	[ml]	48	(71-127)	51	(70-138)
	[ml/m ²]	23.9	(39-63)	25.4	(36-69)
EF	[%]	69	(59-77)	54	(57-83)
Cardiac Output HR		67 BPM			
LV Dimensions					
Wall Thickness - Anteroseptal		1.6 cm			
Wall Thickness - Inferolateral		1 cm			
Wall Thickness - Maximum		1.6 cm			
LV EDD		3.5 cm			
LV ESD		2.4 cm			
LA Dimensions (LV Systole)					
Diameter					1
Area - 2 Chamber					15
Length - 2 Chamber					5.2
Area - 4 Chamber					11
Length - 4 Chamber					3.4
Volume					41
Aortic Root Dimensions					
Sinus of Valsalva		3.7 cm			

Follow-up data

Linked to Social Security
Death Index to track all-
cause mortality

What data are in the Registry?



Images

SCMR Registry Connector - My Hospital

Search Last[, First] Name or MRN... Not a medical device. Research use only. All Time All Modalities

Viewing 1 - 23 of 2427 patients matching All Time, All Modalities

Patient Name	Patient MRN	Patient DOB	Most Recent Procedure	Procedure Count
Patient-10143	5879-8002-4585-6679	1968-Jan-1	2018-Jun-26 10:00 MR Report	1 Procedure
Patient-10161	0072-0001-4235-1827	1950-Jan-1	2018-Apr-1 10:00 MR Report	1 Procedure
Patient-10210	7444-9001-1925-5222	1952-Jan-1	2018-Apr-11 10:00 MR Report	1 Procedure
Patient-10554	6954-5001-2795-0113	1996-Jan-1	2018-Oct-27 10:00 MR Report	1 Procedure
Patient-10744	4490-2001-6185-1410	1947-Jan-1	2018-Jun-27 10:00 MR Report	1 Procedure
Patient-10790	5308-3001-2435-0291	1942-Jan-1	2018-Apr-9 10:00 MR Report	1 Procedure

Procedure	Description	Group	Order	Images	Report	Collections
2018-Apr-9 MR	Anonymous Study	SCMR Test Group	N/A	Available Preload	Pending	Publish Add to Collection
Patient-10841	3661-5001-8015-8167	1999-Jan-1	2018-Apr-13 10:00	MR Report	1 Procedure	
Patient-11102	3360-0001-6595-1177	1985-Jan-1	2018-Feb-2 10:00	MR Report	1 Procedure	
Patient-11146	7405-7001-8385-6492	1954-Jan-1	2018-Feb-20 10:00	MR Report	1 Procedure	
Patient-11168	3770-5001-4065-4733	2003-Jan-1	2018-Jan-12 10:00	MR Report	1 Procedure	
Patient-11195	4212-7002-4275-3854	1945-Jan-1	2019-May-23 10:00	MR Report	1 Procedure	
Patient-11217	8183-1001-9055-3560	1997-Jan-1	2018-Feb-20 10:00	MR Report	1 Procedure	
Patient-11223	3857-3001-3365-3545	1974-Jan-1	2018-Jan-11 10:00	MR Report	1 Procedure	
Patient-11500	4100-4002-3695-1540	1965-Jan-1	2018-Jul-1 10:00	MR Report	1 Procedure	
Patient-11580	9880-8001-0705-5781	1960-Jan-1	2018-Jan-29 10:00	MR Report	1 Procedure	
Patient-11707	0888-5002-0455-1150	1954-Jan-1	2018-Apr-9 10:00	MR Report	1 Procedure	
Patient-11781	6997-3001-5375-2080	1972-Jan-1	2018-Jan-31 10:00	MR Report	1 Procedure	
Patient-12168	6919-8001-0375-2325	1978-Jan-1	2018-Jun-23 10:00	MR Report	1 Procedure	
Patient-12387	0467-2001-9775-9790	1945-Jan-1	2018-Feb-10 10:00	MR Report	1 Procedure	
Patient-12396	6674-5001-0905-4990	1942-Jan-1	2018-Dec-27 10:00	MR Report	1 Procedure	
Patient-12421	3958-3001-2685-5253	1947-Jan-1	2018-Dec-14 10:00	MR Report	1 Procedure	
Patient-12451	0530-7001-5545-1384	1988-Jan-1	2018-Mar-22 10:00	MR Report	1 Procedure	

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What data are in the Registry?



SCMR

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Magnetic Resonance

The screenshot displays the SCMR Registry web interface. At the top, the browser address bar shows the URL: <https://registry.scmr.org/2483-7644-2533-0185/>. Below the address bar, a navigation menu includes links for Apps, Bookmarks, ISMRM Low Field Work, Division of Payment, SCMR Board Documents, SCMR Email, Society for Cardiovascular, PRECESSION, WebPAX Main, Google, GMAIL, and John A. Prior Head. The main content area features a patient record for **CloudCMR-68918, Anonymous** with a **DOB: 1967-Jan-01**. A timeline below the record shows a scan on **MR 2018-Nov-30 10:00:00**. The interface includes a toolbar with various icons for navigation and viewing. A grid of 24 MRI scan thumbnails is displayed, with **Series 12** highlighted in green. The main viewing area shows a large MRI slice of the heart, with technical details: **CloudCMR-68918, Anonymous**, **MRN 3022-0002-2835-5531**, **DOB 01-JAN-1967**, **Slice Offset -48.64 mm**, **FOV 180.00 mm**, **256 X 192**, and **Length 0.277 sec (inverse: 68/min)**. The bottom of the interface shows navigation controls: **Not Preloaded**, **(←) Previous Series**, **(→) Next Series**, **(space bar) Play / Pause**, **(Alt + ←) Previous Frame**, and **(Alt + →) Next Frame**.

**Integrated
DICOM data**

Steps to Registry Participation



1. Download the SCMR Registry Participation Agreement:
from <https://scmr.org/page/Registry>

2. Secure Institutional signature

3. IRB Review

Note that Registry participation is not considered to be human subjects research in the USA according to HHS Guidelines, and therefore does not require IRB oversight.

4. Data Security Review by your hospital IT department

Steps to Registry Participation



Registry Connector System Installation

The Registry Connector will:

1. Extract, de-identify, and upload images and report data to the Registry from existing PACS and CMR reporting systems.
2. Provide a local, searchable database of CMR images and reports for research and quality control.
3. Enable participation in SCMR Quality Control Program.

There is a nominal charge to setup and maintain the Registry Connector

Why should I contribute data? i.e., what's in it for me?!

- Opportunities for research, collaboration, and publication.
- Registry Connector is a powerful local research database.
- Quality assessment features (under development) will improve your CMR service.
- “VIP access” through the Registry Portal
 - Self-service searching of the entire Registry
 - Real-time access to multi-center images, clinical data, and follow-up data

Data Sharing Principles



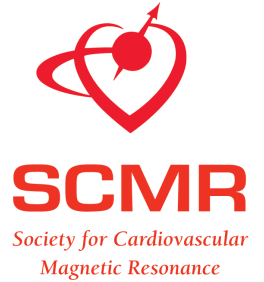
SCMR

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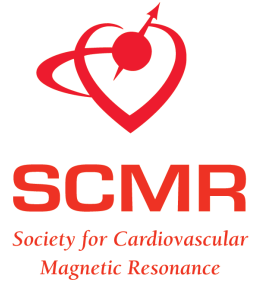
- **Registry data are accessible to all SCMR Members** for research without preferential or exclusive access for any person or organization.
- **Registry data remains in control of each contributing center.** Each contributor has the option to allow or restrict the use of their data on a project specific basis.
- All researchers will be subject to the same application process and approval criteria.
- All users will be required to publish their findings and return their results to the Registry

Registry Data Access Policy



- **Any SCMR member may request access to Registry data** for the purposes of research and publication, and for the development of grant proposals that will potentially lead to external funding. **Contribution of data is not a prerequisite for access** to Registry data.
- **Registry data access will follow a two-step process:**
 1. **A search** of the Registry data will determine the number and contributor of cases meeting the specific search criteria.
 2. **A proposal** for access to the data resulting from the search is submitted to the Registry Committee for approval.

Requesting a Registry Search



- **Active contributors** of Registry data are permitted to view and search the Registry database themselves at any time via the Registry portal.
- SCMR Members who are **not active contributors** of Registry data may submit a **search request** to the SCMR Registry Committee.
 - A Registry Committee Member will work with you interactively to optimize and execute your search.
- The outcome of an effective search will result in a tally of the number of cases meeting the search criteria, a list of which sites contributed these data, and the number of cases contributed by each site.
- This information (number of cases and contributing sites) will be incorporated into an application for access to these data.

Proposing a Registry Project



- An application to access Registry data for a specific project will be submitted to the SCMR Registry Committee
- The application will incorporate key elements including:
 - the purpose of the study,
 - a projected timeline and milestones,
 - and expected outcomes (publications and/or funding proposals).
- A publication plan is required detailing:
 - hypotheses,
 - proposed authorship,
 - pre-existing intellectual property (if any),
- The SCMR Registry Committee will review and render a decision on each proposal

Proposing a Registry Project



- The SCMR Registry Committee will contact the Contributors of data required for the project, present the research proposal together with the researcher, and request data access.
- Those Contributors who permit their data to be used may be granted co-authorship, co-investigator status, or other acknowledgement commensurate with their contribution to the project.
- Once contributing sites have agreed to participate, the relevant data will be aggregated into an SCMR Registry folder.
- Access by researchers to the aggregate data is granted only for the purposes of the specific research project detailed in the approved proposal.

Steps to Registry Research

SEARCH THE REGISTRY DATABASE

Data Contributors search on their own

Non-contributors submit a search request

SUBMIT A PROJECT PROPOSAL

Application reviewed and approved by Registry Committee

REQUEST DATA ACCESS FROM CONTRIBUTORS

Researcher and Registry Committee pitch the project to contributors

AGGREGATE PROJECT DATA FOLDER CREATED BY SCMR

Data contributors access in real-time

Non-contributors receive periodic data dumps

Does this data sharing model work?

Research

JAMA Cardiology | **Original Investigation**

Prognostic Value of Vasodilator Stress Cardiac Magnetic Resonance Imaging A Multicenter Study With 48 000 Patient-Years of Follow-up

John F. Heitner, MD; Raymond J. Kim, MD; Han W. Kim, MD; Igor Klem, MD; Dipan J. Shah, MD; Dany Debs, MD;
Afshin Farzaneh-Far, MD, PhD; Venkateshwar Polsani, MD; Jiwon Kim, MD; Jonathan Weinsaft, MD;
Chetan Shenoy, MD; Andrew Hughes, BS; Preston Cargile, BS; Jean Ho; Robert O. Bonow, MD;
Elizabeth Jenista, PhD; Michele Parker, MS; Robert M. Judd, PhD

[Supplemental content](#)

> 9,000 patients

Automated all-cause mortality tracking

Does this data sharing model work?

- > 1,000 patients
- **Access to images for post-hoc analysis**
- Automated all-cause mortality tracking

Feature-Tracking Global Longitudinal Strain Predicts Death in a Multicenter Population of Patients With Ischemic and Nonischemic Dilated Cardiomyopathy Incremental to Ejection Fraction and Late Gadolinium Enhancement



Simone Romano, MD,^{a,b} Robert M. Judd, PhD,^c Raymond J. Kim, MD,^c Han W. Kim, MD,^c Igor Klem, MD,^c John F. Heitner, MD,^d Dipan J. Shah, MD,^e Jennifer Jue, MD,^a Brent E. White, MD,^a Raksha Indorkar, MD,^a Chetan Shenoy, MD,^c Afshin Farzaneh-Far, MD, PhD^a

ABSTRACT

OBJECTIVES The aim of this study was to evaluate the prognostic value of cardiac magnetic resonance (CMR) feature-tracking-derived global longitudinal strain (GLS) in a large multicenter population of patients with ischemic and nonischemic dilated cardiomyopathy.

Support the SCMR Registry!



- The success of the SCMR Registry depends on your participation!
- You can participate as a researcher even if your site does not contribute data.
- Stop by the SCMR Booth to try out your search with a Registry Committee member
- To find out more go to:
<https://scmr.org/page/Registry>
or contact me (Simonetti.9@osu.edu)
or Lauren Small (lsmall@scmr.org)

