ICVR 2019 Spring Meeting Minutes
Bordeaux 23.-24. May 2019

Participants: Jack Cronenwett, Kevin Mani, Art Sedrakyan, Birgitta Sigvant, Christian Behrendt, Adam Beck, Daniel Bertges, Jens Jorgenssen, Alexei Svetlikov, Matthew Joe Grima, Nicla Settembre, Martin Althreuther, Turi Saltnes, Alexei Svetlikov, Gabor Menyhei, Zoltan Szeberin, Pius Wigger, Thomas Lattmann, Jonathan Boyle, Konstantinos Moulakakis, Frederico Concalves

THURSDAY 23.4.2019

AAA Projects

1) **Volume-outcome analysis** of 11 countries 2009-2017. Kevin presented the results of the paper submitted to Circulation. Analysis of the AAA-data 2014-2017 showed volume-outcome correlation in open surgery but not in endovascular repair.

Currently Jialin is analyzing the same AAA data to determine the optimal diameter threshold recommendation for non-ruptured open aneurysm repair to minimize perioperative mortality. Data were presented regarding the volume threshold analysis and the implications for current guidelines from the ESVS and SVS.

It was agreed that ideally hospitals should track outcomes in a registry to assure good outcomes independent of volume, which should be part of the messaging for this manuscript, and in order to account for low volume centers, mortality outcome should be reported for last 50 cases, even if this requires multiple years analysis.

To do:
-Additional analysis to include Non-risk adjusted data since this allows data from all countries, and likely won't differ much from risk-adjusted (publish both as comparison).
-Look at totality of data to determine if a 'Risk,' 'Injury,' 'Failure,' 'Loss,' and 'End-stage' (RIFLE) classification of renal failure (Germany collects only RIFLE 4/5) can be assigned. If so, apply classifications and see how higher RIFLE class affects the model. If not, include German data in non-risk adjusted group
-Write paper

Assignment: Sal Scali (and need a volunteer from Vascunet registry)

New ideas: (need investigator interested in pursuing this!)
-Effect of distance from a large referral center on volume of cases and outcomes of nearby centers (will have to decide what's "large," perhaps use threshold data to define), cases done by smaller centers adjacent to vs. far from - differences in mortality?

2) **Variation in outcome by country.** Jialin (on behalf of Jon) presented the, unadjusted analysis which considered age, sex and aneurysm size in adjustment. In the analysis, the proportion of EVAR of all procedures did not correlate with the overall AAA-repair mortality. The risk adjustment project is challenging as not all countries collect all data (for example Germany does not collect creatinine and aneurysm size). On the other hand the difference between unadjusted and adjusted mortality is probably not high (to be tested) and the decision was to report unadjusted country level data as informative.

To do:
Look at sub-group with "small" aneurysms for which risk adjustment might not be needed. Will require additional analysis.
Consider getting age and gender stratified data from the UK and Germany to present some risk stratified data for all countries.

Assignment: Jon Boyle (and need a volunteer from VQI)

New ideas for future (post 2016):
-How has the NICE discussion affected EVAR utilization within ICVR (to be answered in future when more recent data available).

3) **EVAR device evaluation for rAAA.** Kevin and Adam presented the current status of the project. As the current EVAR-labeling does not specifically include ruptured aneurysm, the purpose of this study is to prove the safety of EVAR in the treatment of RAAA as it is a standard treatment in many centers nowadays and the mortality is low. The power analysis indicated that 168 EVARs (at least 30/device) is needed and 504 open RAAA controls (1:3 ratio for propensity analysis) treated in ICVR during same period. Propensity score matched analysis will be used to compare the groups EVAR vs. Open and the primary endpoint is in hospital mortality. The companies that have expressed their interest to participate are, Cook, Endologix, Medtronic and Gore. For the participating registries, a reimbursement 400 US$/case will be offered, and distributed proportionately to centers contributing cases, to cover the work of additional data entry, with the registry witholding a portion of the funds to cover adminstrative costs.. IMDFR and FDA are supportive of this project.

The plan is to collect the cases equally, 50% from VQI, 50% Vascunet. The leaders of the project will send a questionnaire to the registries about the willingness to participate. The number of cases per center from each participating registry will be calculated from the previous data collections. Each registry can divide the cases among centers as they wish, as long as consecutive cases at each center are collected. The following registers expressed their interest to this project: Switzerland, France, Hungary, Spain, Norway, Germany, Holland, UK, Denmark, and others not in this meeting will be asked.
It was agreed that for open control cases, any aortic clamp level is allowed, but must be analyzed. VQI cases will be used to balance device types to be sure each mfg has at least 30 cases per device type (since VQI has ample cases to do this in past 1-2 years).

To do:
Deadline: complete this project by end of the year.
-**Email protocol to all ICVR registries to help them get started with approval process for IRBs if required.
-Need to create our method of patient sampling a priori

-DCC will be Cornell/UAB
-Need to identify a point person at each participating center/registry within ICVR

ASSIGNEMENT: Kevin, Adam

4) **5 year survival after elective oAAA vs EVAR.** As Nikolaj was not able to participate, the project was discussed overall. The objective of this project is to compare late survival after AAA repair, since EVAR has the potential for more late than early deaths. Five year survival data is currently available in several registeries with linkages to national death index: VQI, Finland, Norway, Sweden, Malta, Germany. Hungary Russia (St Petersburg region) and France (Nancy region) expressed their interest and they will find out the possibility to extract 5-year mortality data. AUS might have this by end of the year.

ASSIGNEMENT: Matthew,Nikolaj (and need VQI volunteer)

PAD Projects

5) **Global variation in PAD treatment** .Christian presented the plan to initially compare endo vs open surgical treatment and claudication vs CLI indication across different registries, with comparison based on different reimbursement systems. Several countries have already delivered the data. Deadline for the data

delivery to Christian is June 30, 2019 and the aim is to present preliminary results in New York on November.

ASSIGNEMENT: Christian and Danny

New ideas:
-Possible presentation at NY meeting regarding IT and registry development to harmonize the collection of data for such projects. Each registry could present a short illustration of how they enter data into their system, to learn from each other.

6) Evaluation of mortality after Pactlitaxel coated balloons and stents. The potential to use data from multiple ICVR registries to evaluate late mortality of DCB and DES treatment was discussed. Long term mortality after PVI would be the outcome measure. Danny described an initial project that has been done in VQI with 2 year outcomes that will be presented in June at SVS VAM. Currently other ICVR registries do not have historical data on device details that could generate long term survival analysis, but such device details are now being collected in several registries (Swedpad, German Data, VQI, Australia) for use in future studies.

6) **Statin Gender Gap.** Danny and Birgitta proposed a study which would focus on statins use and myocardial infarction in patients with peripheral arterial disease: Treatment patterns and long-term outcome in men and women. The hypothesis is that there is a ”statin-gender-gap”, which is not only related to patients own behavior but also it seems that doctors treat genders differently. So far the engaged registers are Swedvasc, Germany and VQI. The aim is to collect data between 2010-2017 and include symptomatic PAOD (PVI, OSR). The aim is to compare prescription rates of BMT, but also an attempt to determine which patients redeem the prescription. Proposal is currently being prepared by the PAOD group and will be sent to ICVR members.

During this topic a discussion on the variation of the data collected by the different registries for PVI treatment. ICVR has now published recommended variables, which Christian has presented in the previous meetings, including three levels of data collection. All registries should work towards these commonly agreed variables in the level their choose. A survey to determine which registries collect which data elements will be considered by Danny and Christian.
Assignment: Birgitta, Danny, Christian.

7) At the end of the first meeting day Jack made an announcement: 5 years have passed, and Jack feels it is time to step down. Adam Beck has been selected as the new co-chair by the VQI leadership. CONGRATULATIONS ADAM.

FRIDAY 24.5.2019

Carotid Projects

9) Maarit presented a preliminary analysis on Vascunet procedures for carotid stenosis. The main focus was gender differences and delay in treatment for symptomatic cases. First she showed an analysis on Vascunet data only (207000 carotid operations during 2009-2017). No gender differences were seen in the 30-day combined stroke and/or death rate. In an subanalysis of 26000 patients with information on delay from the index symptom to stroke a significantly higher stroke and/or death rate was seen in patients who had the operation within 2 days after the index symptom. This phenomenon was seen in both genders. One possible reason for this can be the fact that most vulnerable plaques, those presenting crescendo tia symptoms, may

be overepresented in the <2 days group as this is an indication for urgent operation. Thus, those operations that prevents more stokes also has higher complication rate. The potential value of analyzing symptom severity (modified Rankin, or if not available, simply TIA vs stroke) in terms of impact of treatment timing was proposed.

The preliminary figures of VQI carotid data collection with 107, 000 procedures were also presented. This included also mortality and delay data.

It was decided to focus analysis on gender differences, delay including both open surgery and stentings and a comparison between two time periods (2009-2013 and 2014-2017). The outcome data will include in hospital or 30-day stroke and death rate, AMI rate.In the analysis the type of procedure and the indication (asymptomatic, tia, stroke) will be analyses separately and cases with pre-treatment thrombolysis will be excluded. This will likely generate several publications.

ASSIGNEMENT: Maarit, Grace, Magnus

10) **Carotid patch type.** Jens presented the VQI results on the impact of carotid patch type, where early reoperation rate complication rates and one year restenosis rate were analyzed. Best outcome was achieved with bovine pericardial patch and the worst with Dacron or closure of the arteriotomy without patch. Vein patch was inferior to pericardial patch.
Suggestion to perform an ICVR study on the international variation in the type of endarterectomy (eversion vs traditional EA) and type of patch used was planned. Due to the fact that in many countries patients are not followed beyond 30 days the late restenosis rate would be difficult to include.

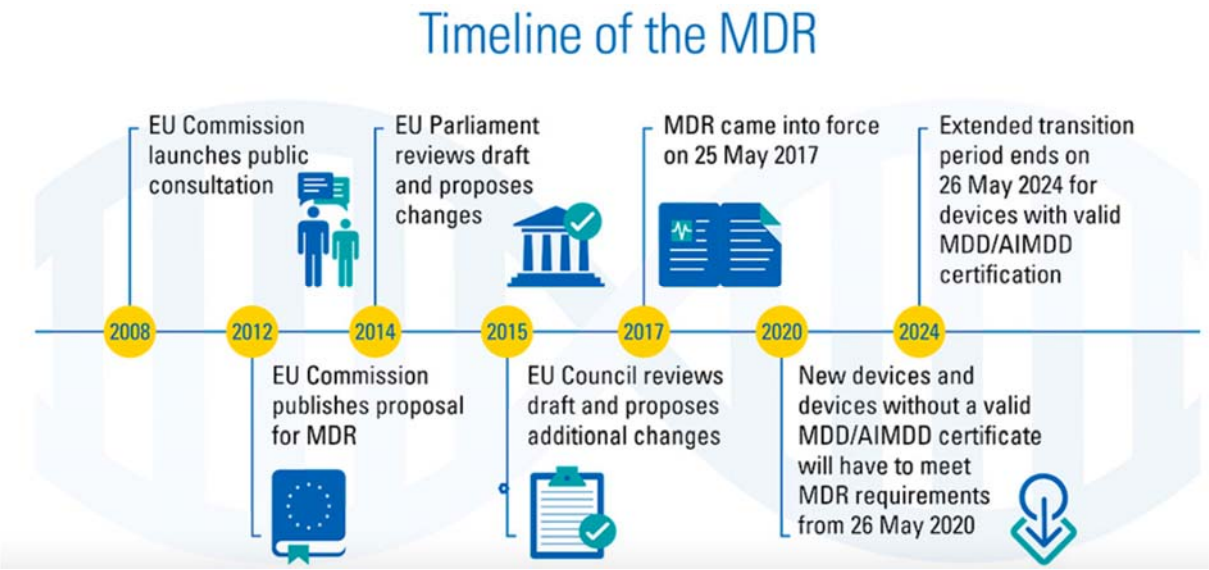
To do:
-Questionnaire to determine granularity of data/interest level for participation from each registry
- Gather international data
-Registries will need to begin ethical committee/IRB processes at their respective centers/countries

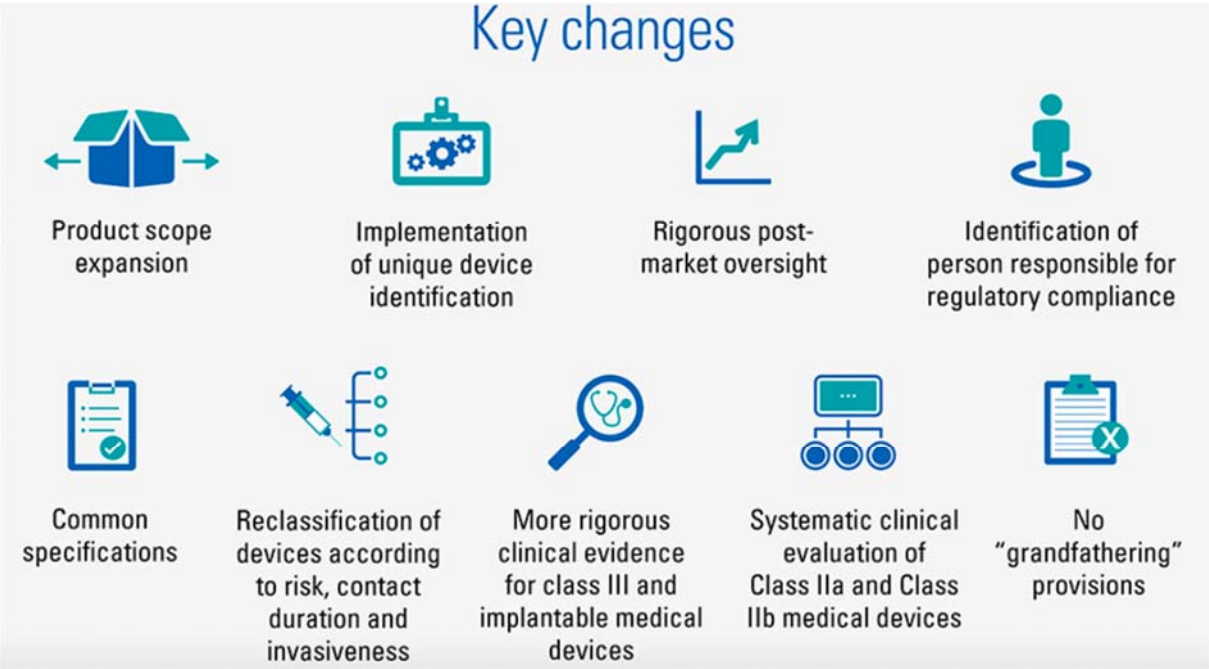
ASSIGNEMENT: Jens, Gabor

11) **EU MDR Update**

Dr. Tomoko Dasari of the notified body TUV SUD presented a summary of new EU medical device regulation changes that were published on 5 May 2017 and will come into force after three years transition on 25 May 2020. In the future manufacturers will need to provide more in-depth clinical data which proves safety and performance claims and have tighter equivalency standards. Companies will have to report all incidents, injuries and deaths into an EU portal that will contain relevant data so patients have access to safety-related information. The deadline for reporting incidents that did not result in death or serious deterioration in health has been changed from 30 days to 15 days.

-The European Medical Devices Regulation (MDR) will tie post-market clinical follow-up (PMCF) data more closely to post-market surveillance and clinical evaluation report requirements.
-Medical device companies' PMCF studies will have to include specific components identified in the MDR.
-Approvals for PMCF studies will need to be obtained by Ethics Committees and, in some cases, Competent Authorities.





-SSCP shall be written in a way that is clear

After the presentation there were many questions. For example, of the annual reporting analysis: is one country enough or does every country have to do it? Is US data enough?
Answer: It has to be done in European state where device was put into the market.
It was emphasized that the examination should be population based and include long-term outcome. Also it was concluded that the change will cause double or even triple work from Notified Bodies, which causes more costs. Who will pay? Postmarket study cannot be arranged for every device and registry data may become valuable for this. Registries should be prepared. Registers already collect a lot of data and the data harmonization will become even more important. At the moment only 2 Notified bodies have been certified to conduct EU MDR analyses

12) **ICVR Quality Improvement Project**

Adam reported that cardiologists achieve 99% statin intake for patients after AMI but this proportion is much lower in our patients after PAD, carotid and AAA treatment. Remarkable increase in statin usage rate in VQI centers has been achieved by publishing the results and pushing the message. Improvement was visible in almost all VQI centers. Statins and AP agents prescribed at DC are associated with substantial improvement in 5 year survival.

The first ICVR project could be a retrospective analysis on centers who have done quality improvement initiative in comparison to those who has not, to understand if these centers/countries have achieved higher statin AP usage.

New idea: (Christian) Gender/race/socioeconomic gap in statin prescriptions?

A project for ICVR would be a continuous project to achieve 99% statin and AP rate among patients as the cardiologists have.

To do:
-Questionnaire to evaluate:
-Whether/how statins/AP data are collected
-Whether/how QI projects have been performed
-If QI project has been performed, over what time period?
-Already published?
-Are you willing to participate?
-For registries who agree to participate, will need to provide the protocol to present to ethical committees/IRBs

ASSIGNEMENT: Need volunteers for this project (? Randy D, Birgitta?)

13) **HIVE** to address GDPR requirements,

data transfer from Vascunet to the analysis center has become difficult from several countries. Art presented a solution which allows data analysis without moving data out of a new server established in Germany in collaboration with Christian. This server employs the HIVE=High-performance integrated Virtual environment method, which is a secure environment for data archiving and remote analysis

Data analysis can be done from the combined data but does not move the data across the borders.

Christian and Art will test the system in the next 2 months and it will be ready by November meeting.

14**) New Ideas**

Jack: Discussion on RAAA project with companies at SVS VAM. Christian from Vascunet will be there.

Art: Specific device outcome analyses in EVAR/ FDA has asked ICVR willingness to help. Focus on Endologix for now. Problem is that few of such devices are used in ICVR registries beyond VQI.

Kevin: Cook Zenith Alpha: Some issues with durability of this low profile device have been presented. A project on the long term outcome of different EVAR-devices would be valuable.

15) Fall 2019 meeting: Tuesday 19. November 2019 at VEITH, in one of the meeting rooms of hotel, to be announced. Dinner will be on Tuesday evening.

Spring 2020 meeting: In Granada, Spain, on May 14-15, in association with Vascunet meeting.