

**National Cancer Institute (NCI)
Integrated Canine Data Commons (ICDC) Steering Committee (SC)**

**Teleconference
Wednesday, September 2, 2020**

Participants (*Present)

External Committee Members

Matthew Breen*
Renee Chambers*
Dawn Duval*
Heather Gardner*
Allison Heath
Will Hendricks*
Warren Kibbe*
Debbie Knapp, ICDC-SC Chair*
Cheryl London*
Jeff Trent*
Roel Verhaak*
Shaying Zhao*

Internal Committee Members (NCI, National Institutes of Health, and Frederick National Laboratory for Cancer Research [FNLCR])

Matthew Beyers*
Allen Dearth
Toby Hecht*
Paula Jacobs*
Tony Kerlavage*
Erika Kim*
Amy LeBlanc*
Christina Mazcko
Philip Musk*
Elaine Ostrander*
John Otridge
Ralph Parchment, ICDC-SC Managing Secretary*
Connie Sommers*
Greg Tawa*

Others

Anju Singh*
Lori Lydard
Tara Whipp
Mary Cerny (writer)*

Opening and Welcome

Drs. Knapp and Parchment opened the meeting at 11:31 a.m. ET and welcomed attendees.

Minutes of the July 2020 Meeting

The minutes of the July 29, 2020, ICDC-SC meeting were accepted as written.

Reports from the Working Groups (WGs)

Data Governance Advisory Board (DGAB) Chair's Report

The DGAB had no new submissions in the past month and did not meet in August. To date, seven studies have been submitted to the DGAB to be considered for inclusion in the ICDC; the priority list for those submissions can be found [here](#). Three of the studies have been approved and released and were included as part of the launch of the redesigned ICDC [website](#) (discussed below). Four additional studies are either in review or in queue for review by the DGAB. Dr. Kibbe noted that the board has been balancing review and prioritization of incoming submissions with operationalizing the ICDC portal. These ongoing efforts reflect a learning curve as the group continues to make progress. The DGAB has also been focused on expanding outreach to increase awareness of and data submission to the canine commons. Efforts to increase outreach were discussed later in the meeting (see below).

Best Practices Subcommittee (BPS) Chair's Update

The goals for the BPS have been finalized and can be amended or modified as needed going forward. Dr. Trent and members of the BPS provided the following additional updates:

Genomics WG

Progress is being made in two key areas: the short best practices document for genomics analysis, and the development of a framework for harmonization of canine genomic data. Drs. Gardner, Heath, and Hendricks have taken the lead on the best practices document for investigators seeking to submit data from the ICDC. A two-page draft document was forwarded to Drs. Hecht and Kibbe for initial comment; the revised draft should be ready for final review by the ICDC-SC soon.

The WG has put together a proposal for a harmonized, cloud-based pipeline that could be leveraged within the ICDC. This effort builds on the experience of other similar programs and platforms such as the Genomic Data Commons, CHOP, and the Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM). The proposal can be circulated within the ICDC-SC for review.

The genomics best practices “white paper” remains a work in progress. For example, Dr. Zhao is putting together a table of primary analysis tools, Dr. Gardner is working on the data platform, and Dr. Duvall is addressing comments from the WG. The goal of this document is to provide an overview of next generation sequencing (NGS) study design, assays, analysis, and approaches used by diverse teams, alongside annotation and validation studies and tools. The paper identifies common data elements across analyses, general principles in canine cancer genomics, and gaps in best practices and solutions. Given the great diversity in how canine studies are performed, in the absence of benchmarking and validation data, the need for harmonization and reference

standards is notable. These issues point to the need for the working group to develop a harmonized analysis approach for the canine research community and the ICDC.

The planned approach takes the long view and presumes that data that do not fit into a more well-defined model will continue to be submitted over time. A long-term process that looks at and fills these gaps in the data and research practices will be needed. Given the challenges with cross-comparing studies without standardized tools or benchmarks, the team perhaps should focus on prioritizing the creation of a framework for a cloud-enabled harmonization tool that could be used by the larger community to identify and pull usable data for the ICDC. The pipeline should be designed to bring in rather than reject data so that the ICDC can leverage raw data in various forms even if those data do not fit a standardized model.

The proposed approach takes the natural variation in the canine genome into account. As data indicating somatic variance are identified, the system should be able to go back to the study populations to make sure those variances are properly classified. Part of this process will include assessing outliers and unexpected findings to determine whether such data derive from biological variation or from differences in techniques and technology. This process will be fundamental to identifying and prioritizing the types of datasets to encourage investigators to both contribute to and generate using the ICDC.

Dr. Ostrander has been working with American College of Medical Genetics and Genomics (ACMG) standards and algorithms for calling variance, particularly for the germline, to see which rules can be applied to canine genomics. Initial efforts have focused on alignment rules and frameshift variances. As Dr. Ostrander noted, per the human literature, not all variances are expected to be deleterious. Once standards and algorithms are developed for germline sequences and mutations, the same process will be undertaken for somatic variance. Dr. Zhao's team has been re-analyzing about 600 exomes from the public sphere and will make those findings and the sequences available through the pipeline. She is also working on the quality control (QC) section of the proposal to cover general guidelines in addition to specific issues such as breed matching, tumor model matching, and next generation sequencing. Dr. Zhao reiterated the difficulties in making cross-study comparisons and underscored the importance of QC and standardization of datasets. Dr. Ostrander noted, for example, that QC metrics for alignment in humans will guide the setting of QC thresholds and metrics for dogs.

The Committee supported the use of ACMG guidelines to develop metrics to identify changes in canine cancers. A separate component on non-cancer data is also planned. A non-cancer data working group will be convened and will take the lead on this effort.

Committee members were invited to contribute to and weigh in on the process and proposal for the harmonization guidance.

Imaging WG

Drs. Jacobs and LeBlanc provided updates. The WG continues to reach out to researchers who have magnetic resonance (MR) image files for the canine glioma dataset and to curate those images and the companion clinical and genomic data for the ICDC. Some of the images were done offsite facilities, which might slow the process somewhat. Dr. LeBlanc noted that hematoxylin and eosin (H&E) histology slides associated with glioma images are being collected in collaboration with FNLCR team. Once the complement of images and slides is obtained, the

pilot study will be wrapped up. Discussions are ongoing with the canine commons, imaging commons, and The Cancer Imaging Archive (TCIA) groups. A link to the data uploaded to TCIA will be provided when available. Those wishing to access or cross-reference those data will be able to do so through that TCIA link. Dr. Jacobs confirmed that the H&E histology data will be uploaded to TCIA with the accompanying MR images.

Non-Cancer Data WG

Drs. Duval, Hendricks, Kim, Ostrander, and Zhao have volunteered to serve on this WG. Drs. Kim and Ostrander will set up a formal meeting of the WG members. There were no other updates at this time.

Other BPS WG Updates

The other WGs continue to focus on the issues discussed at previous meetings. No additional updates on the other WGs were provided during the teleconference.

Outreach

Public Launch of ICDC Website/National Dog Day

The [ICDC website](#) was officially launched on August 26, 2020, coinciding with [National Dog Day](#). The site was completely redesigned and revamped and is now searchable on Google and other search engines. The launch was promoted via a comprehensive campaign by the NCI Center for Biomedical Informatics and Information Technology (CBII) Communications Team using social media (Twitter, Facebook), press releases, and other outreach strategies. Veterinary organizations and advocacy groups also were engaged in social media messaging surrounding the new site. The launch went well and appears to have generated a lot of interest. Mr. Beyers reported the following data for outreach and initial traffic to the new site:

- The campaign sent out 42 tweets
- The site received 48,000 impressions/likes and 1,225 engagements including comments, responses, shares, and retweets, and had 210 unique users in the first day after the launch
- The hashtag #NCIDataSci, which announced the launch of the ICDC, received more than 9 million impressions (e.g., being quoted on a Twitter or other social media feed or site)

Mr. Beyers thanked everyone involved with the updated site, campaign, and launch. Portal enhancements will be made based on user feedback about how the system works and suggestions for changes or improvements. ICDC-SC members and their students are also invited to test the system and provide comments on the site. Dr. Kim and Mr. Beyers will be drafting specific questions for formal feedback.

One focus in the coming fiscal year will be on increasing the ICDC's visibility. Outreach efforts will include presentations at national meetings. Upcoming events include poster presentations about the ICDC at the [Paws for a Cure Research Symposium](#) on September 29–30, 2020, and the annual [Veterinary Cancer Society Conference](#), scheduled for October 15–17, 2020. Several ICDC-SC members will be speakers at the Paws for a Cure meeting, including Drs. Breen, Chambers, Gardner, Hendricks, Kibbe, LeBlanc, London, Summers, and Verhaak. References to ICDC and the posters in these presentations would be appreciated.

Committee members suggested marketing broadly to audiences that include not only canine cancer researchers and veterinarians but also clinical investigators and advocates for human

cancers. Expanding outreach to human-centric meetings and organizations is consistent with the ICDC's aims, which include formulating new hypotheses based on data from canine clinical trials and improving how human cancers are diagnosed and treated. The NIH National Center for Advancing Translational Sciences (NCATS), Clinical and Translational Science Award One Health Alliance (COHA), and Cancer Treatment Services International (CTSI) are good platforms for outreach. Conferences sponsored by large professional groups and organizations such as the American Society of Clinical Oncology (ASCO), the American College of Radiology (ACR), and the Connective Tissue Oncology Society (CTOS) should also be considered as venues for increasing awareness of the ICDC. Committee members, in turn, were asked to post information and links about the ICDC website and launch via their institution's social media. Mr. Beyers will contact CTSI, COHA, and NCATS about the ICDC launch. Dr. Singh noted that information about the ICDC launch will be in the next issue of the Division of Cancer Treatment and Diagnosis (DCTD) newsletter, the [DCTD Pipeline News](#), which will be published soon.

Additional effort will focus on expanding the data available through the ICDC, including starting the processing of data from the submitted osteosarcoma study, and acquiring and processing non-cancer data, which will be done in coordination with the Non-Cancer Data WG.

Administrative Items

October ICDC-SC Meeting

The next meeting of the ICDC-SC will be held via teleconference on Wednesday, October 7, 2020, from 11:30 a.m. to 1:00 p.m. ET. Dr. Parchment will forward the meeting information and materials ahead of the teleconference.

DGAB, BPS, and Other WG Meetings

Dates and times for other upcoming meetings are still to be determined. Details will be distributed as they become available.

Honoraria

External members should continue to forward the paperwork for their honoraria to Ms. Lydard. Anyone having problems with the form or reimbursement should contact Dr. Parchment.

Action Items

- ICDC launch follow-up:
 - Committee members were asked to post information and links about the ICDC website and launch via their institutions' social media and then send those links to Mr. Beyers.
 - Committee members and members of their research teams who are interested in providing formal feedback on the website should email Mr. Beyer.
 - Mr. Beyers will contact CTSI, COHA, and NCATS about the ICDC website and launch.
 - Ideas for other outreach venues and organizations should be sent to Mr. Beyers.
- Drs. Kim and Ostrander will set up a meeting of the Non-Cancer Data WG.
- Topics for future meetings should be forwarded to Drs. Knapp and Parchment and Mr. Beyers.
- Dr. Parchment will forward the logistics information and materials for the next teleconference as they become available.

Adjournment

The meeting was adjourned at 12:10 p.m.

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