

FALL 2022

JA NOTES

FROM THE ALVEOLAR CAPILLARY DYSPLASIA ASSOCIATION

What's INSIDE

- 1 Greeting
- 2 Pregnancy and Infant Loss Awareness Month
- Story Telling Project 2022 and Awareness News
- 10 Research News
- 13 Fundraising News
- 15 Remembering Our Babies and Welcome to New **Families**
- 16 Safe Arrivals, Committee Positions and Connect With Us



In October 2022, the ACDA created a story telling project in observance of Pregnancy and Infant Loss Awareness month. Please see page 3 for the completed project and view it online here.

In addition, we invite all of our ACDA families to participate in the ACDA Wave of

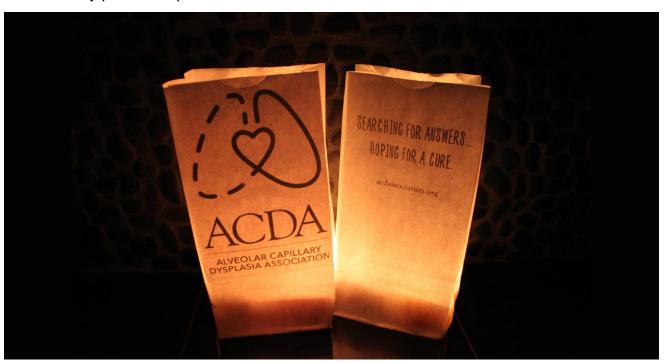
Light on Pregnancy and Infant Loss Remembrance Day. On Saturday, October 15 at 7:00 p.m. in your respective time zone, please share a photo of your candle on the ACDA Facebook or Instagram page to create an ACDA Wave of Light. Please also use the public forum to share your child's name or special memory in the comments. The ACDA Wave of Light provides a time for quiet remembrance and reflection and is a powerful worldwide experience in honor of our loved ones. #WaveofLight Regards, Eliza Rista, President #ACDAWaveofLight

Please follow us on **FACEBOOK** or **INSTAGRAM** and join the ACDA Wave of Light.



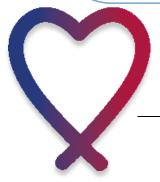
October is Pregnancy and Infant Loss Awareness Month

In 1988, October was established as National Pregnancy and Infant Loss Awareness Month in the United States, with the following words: "When a child loses his parent, they are called an orphan. When a spouse loses her or his partner, they are called a widow or widower. When parents lose their child, there isn't a word to describe them. This month recognizes the loss so many parents experience across the United States and around the world."



October 15, 2022 - Pregnancy and Infant Loss Remembrance Day

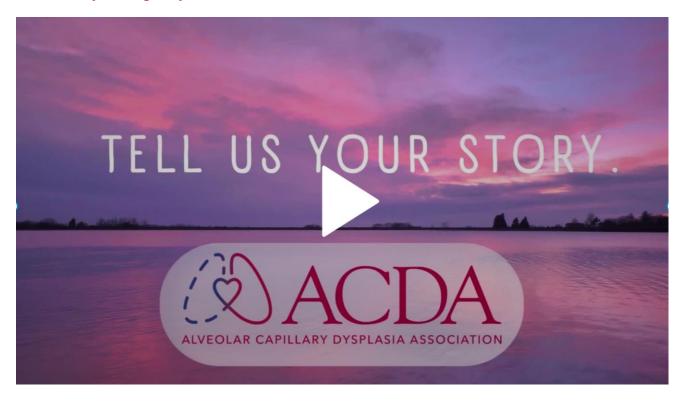
October 15 is Pregnancy and Infant Loss Remembrance Day. The day is observed with ceremonies and candle-lighting vigils, concluding with the International Wave of Light; a worldwide lighting of candles. The International Wave of Light invites participants from around the world to light a candle at 7:00 p.m. on October 15 in their respective time zones, and to leave the candle burning for at least an hour. The result is a continuous chain of light spanning the globe for a 24-hour period in honor and remembrance of our babies we have lost.





AWARENESS NEWS

ACDA Story Telling Project: October 2022



Press Play to View

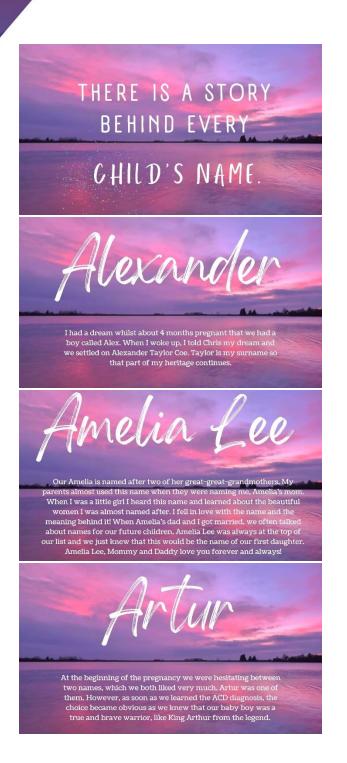
In October 2022, the ACDA created a story telling project for Pregnancy and Infant Loss Awareness Month. Projects in prior years have included collages of our babies, a photo project of bereaved parents, memorial wall, luminaries, calligraphy, written word project about grief over time and an audio compilation of spoken names

This year we wanted to share the meaning behind the names of children affected by ACDMPV. Bereaved parents often have limited opportunities to hear or say their beloved child's name, with even fewer chances to talk about its meaning. We wanted to learn those stories. Please watch the video above or view the individual name cards below. It is our hope that sharing the story of your loved one's name along with reading the names and stories of other children affected by ACDMPV will provide a sense of comfort and community within our ACDA families. A suggested idea is to read the final compilation of stories while lighting your candle on October 15 during the ACDA Wave of Light. View Here

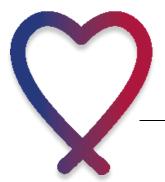
Please go <u>HERE</u> to learn how to participate in the ACDA Wave of Light on October 15, 2022. #WaveofLight #ACDAWaveofLight



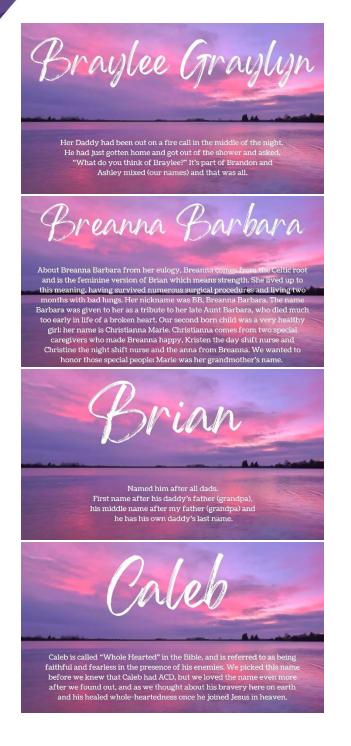


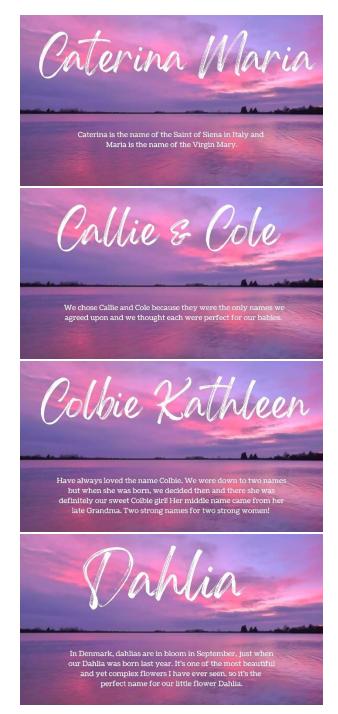






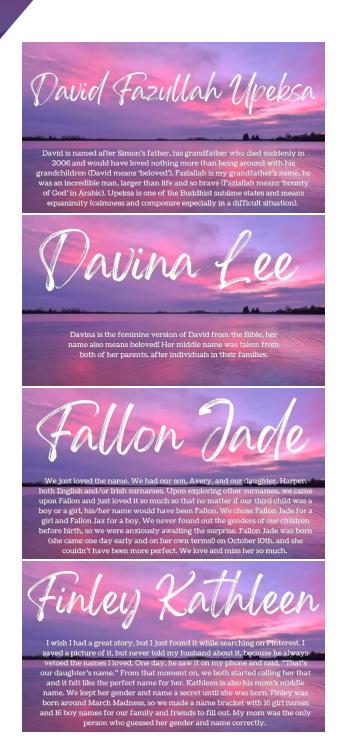


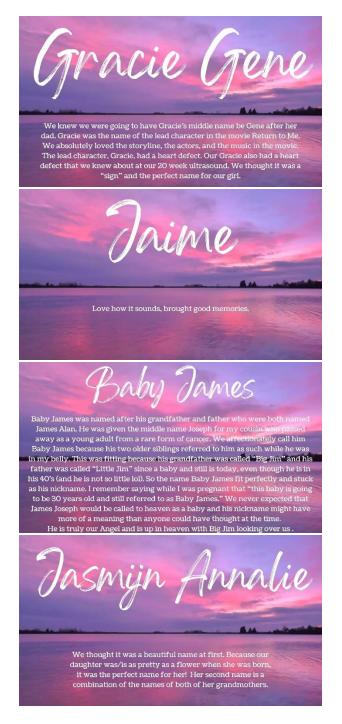






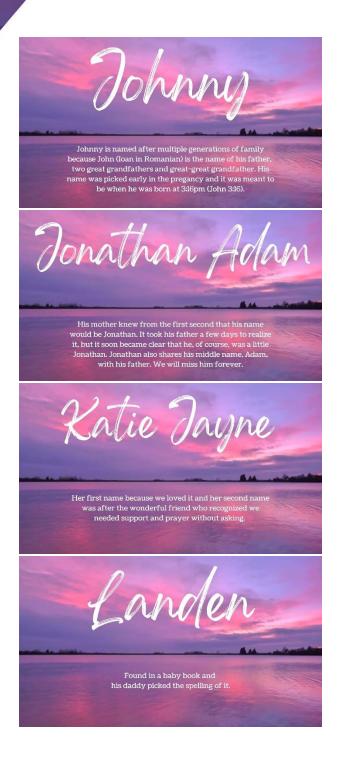


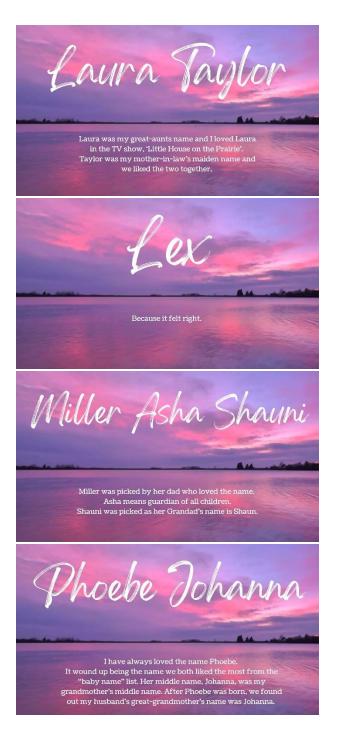






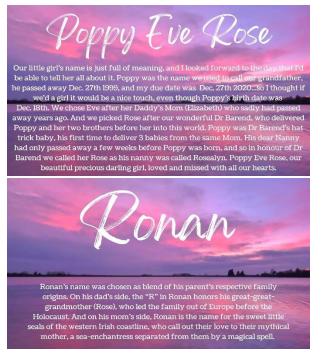


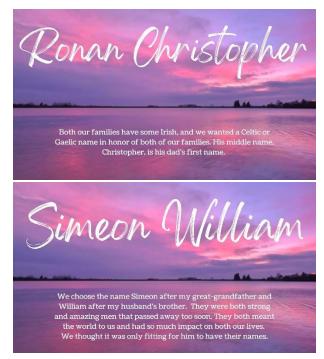


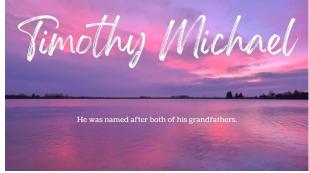


















Lights in Suffolk County (Fallon Rilling):

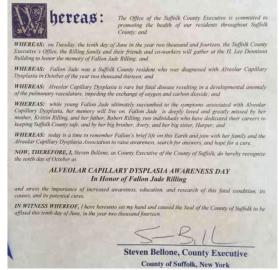


On October 10, 2022, the H. Lee Dennison Building in Suffolk County, New York, USA was once again lit purple to raise awareness for ACDMPV in honor of the ninth birthday of Fallon Rilling (October 10, 2013 - October 21, 2013). In 2014, Suffolk County officials declared every October 10th as "ACD Awareness Day" in Suffolk County, New York in honor of Fallon. As such, the county executive building has been lit each year to promote ACDMPV awareness.

ACDA The will always be grateful to the Rilling family for their incredible awareness and fundraising efforts throughout the years. We look forward to the purple Denison building each year, in honor of Fallon.







Proclamation in 2014 declaring every October 10th as ACD Awareness Day in Suffolk County, New York

Reports from **Stichting ACD** (The Netherlands) and The David Ashwell Foundation (UK) will return in a following edition of ACDA Notes.









RESEARCH NEWS

Journal Article (Nature Communications):



The developmental biology research team at **Cincinnati Children's** Hospital Medical Center in Cincinnati, Ohio, USA (see Issues #57, #62-63, #68-69, #71-72 and #74-76 of ACDA Notes) published a manuscript this

spring entitled, "Endothelial progenitor cells stimulate neonatal lung angiogenesis through FOXF1-mediated activation of BMP9/ACVRL1 signaling" in the Nature Communications research journal, which can be found HERE. Please also view various press releases (HERE, HERE and HERE) regarding this research. Abstract:

"Pulmonary endothelial progenitor cells (EPCs) are critical for neonatal lung angiogenesis and represent a subset of general capillary cells (gCAPs). Molecular mechanisms through which EPCs stimulate lung angiogenesis unknown. Herein, we used single-cell RNA sequencing to identify the BMP9/ACVRL1/SMAD1 pathway signature in pulmonary EPCs. BMP9 receptor, ACVRL1, and its downstream target genes were inhibited in EPCs from Foxf1 mutant mice, a model of alveolar capillary dysplasia with misalignment of pulmonary veins (ACDMPV). Expression of ACVRL1 and its targets were reduced in lungs of ACDMPV subjects. Inhibition of FOXF1 transcription factor reduced BMP9/ACVRL1 signaling and decreased angiogenesis in vitro. FOXF1 synergized with ETS transcription factor FLI1 activate ACVRL1 promoter.

Nanoparticle-mediated silencing of ACVRL1 in newborn mice decreased neonatal lung angiogenesis and alveolarization.

Treatment with BMP9 restored lung angiogenesis and

alveolarization in ACVRL1-deficient and Foxf1 mice. Altogether, EPCs promote neonatal lung angiogenesis and alveolarization through FOXF1-mediated activation of BMP9/ACVRL1 signaling."

From the <u>press release</u>: "The team found that adding synthetic bone morphogenetic protein BMP9 to cells that were deficient for functional FOXF1 genes helped re-create the signaling pathway, stimulating Acvrl1 activity and instructing the lungs to keep making capillaries. The researchers confirmed this through tests in lab cell cultures and in mice. BMP9 is one of about 20 different such proteins found in humans. Originally discovered to play major roles in bone growth, more recently this class of molecules has been shown to play a variety of roles in development. Two other related proteins (BMP7 and BMP2) have been approved by the US Food and Drug Administration for treating bone growth disorders. But so far, no drug that stimulates BMP9 activity has been approved for human use...If a safe BMP9 "agonist" or synthetic BMP9 molecule suitable for human use can be developed, it could become more than a treatment strictly for ACDMPV, Kalinichenko says."

Journal Article (Mol Genet Genomic Med):



The genetic research team at Baylor College of Medicine in Houston, Texas, USA recently collaborated with University of Colorado Anschutz Medical Campus and an international team in Poland to publish a

manuscript entitled, "High-level gonosomal mosaicism for a pathogenic non-coding CNV deletion of the lung-specific FOXF1 enhancer in



an unaffected mother of an infant with ACDMPV" in the Molecular Genetics & Genomic Medicine research journal, which can be found <u>HERE</u>. Partial Abstract:

"Background: Alveolar capillary dysplasia with misalignment of pulmonary veins (ACDMPV) results from haploinsufficiency of the mesenchymal transcription factor FOXF1 gene. To date, only one case of an ACDMPV-causative CNV deletion inherited from a very-low level somatic mosaic mother has been reported.

Results: A pathogenic CNV deletion of the lung-specific FOXF1 enhancer in the proband was found to be inherited from an unaffected mother. 36% mosaic for this deletion in her peripheral blood cells. The qPCR analyses of saliva, buccal cells, urine, nail, and hair samples revealed 19%, 18%, 15%, 19%, and 27% variant allele fraction, respectively, indicating high recurrence risk. Grandparental studies revealed that the deletion arose on the mother's paternal chromosome 16. PGT studies revealed 44% embryos with the deletion, reflecting highlevel germline mosaicism.

Conclusion: Our data further demonstrate the importance of parental testing in ACDMPV families and reproductive usefulness of IVF with PGT in families with high-level parental gonosomal mosaicism."

Journal Article (Eur J Hum Genet):

The genetic research team at Baylor College of Medicine in Houston, Texas, USA

collaborated with an international team in Poland to publish a



manuscript this summer entitled, "Do paternal deletions involving the

FOXF1 locus on chromosome 16q24.1 manifest with more severe non-lung anomalies?" in the European Journal of Human Genetics, which can be found HERE. Abstract:

"Alveolar capillary dysplasia with misalignment of pulmonary veins (ACDMPV) is a rare lethal lung developmental disorder in neonates due to heterozygous loss-of-function of the mesenchymal transcription factor gene, FOXF1. Interestingly, unlike ACDMPV-causing point mutations in FOXF1 that can be inherited from the mother or father, causative copynumber variant (CNV) deletions arise de novo and almost exclusively on chromosome 16 inherited from the mother (n = 50 vs. n = 3). Here, we describe a fourth case of a de novo paternal CNV deletion encompassing FOXF1, its neighboring long non-coding RNA gene FENDRR, and their distant lung-specific enhancer, identified in a 21-week-old fetus with tetralogy of Fallot, gastrointestinal and genitourinary abnormalities, a single umbilical artery, and patchy histopathological findings of ACDMPV in autopsy lung. We also review the ACDMPV-causative CNV deletions detected prenatally and propose that the majority of paternal deletions manifest with more severe additional non-lung abnormalities."

Journal Article (Eur J Hum Genet):



The genetic research team at Baylor College of Medicine in Houston, Texas, USA recently collaborated with international teams in Poland and Australia to publish a manuscript entitled, "Variable expressivity in a four-

generation ACDMPV family with a non-coding hypermorphic SNV in trans to the frameshifting FOXF1 variant" in the European Journal of Human Genetics, which can be found HERE. Abstract: "Heterozygous single nucleotide



variants (SNVs) or copy-number variant deletions involving FOXF1 or its distant lung-specific enhancer on chromosome 16q24.1 have been identified in 80-90% of patients with Alveolar capillary dysplasia with misalignment of pulmonary veins (ACDMPV), a lethal neonatal lung developmental disorder. We describe a four-generation family with a deceased ACDMPV neonate, her sibling from the electively terminated pregnancy, healthy mother with a history of pulmonary arterial hypertension (PAH), an unaffected aunt, an aunt deceased due to findings consistent with ACDMPV, and a reportedly unaffected grandmother, all with the frameshifting variant c.881 902dup (p.Gly302Profs*46) in FOXF1, and a deceased great-grandmother with a history of PAH. Genome sequencing analyses in the proband's unaffected mother revealed a non-coding putative regulatory SNV rs560517434-A within the lung-specific distant FOXF1 enhancer in trans to the FOXF1 frameshift mutation. Functional testing of this variant using an in vitro luciferase reporter assay showed that it increased FOXF1 promoter activity 10-fold. Our studies further demonstrate that non-coding SNVs in the FOXF1 enhancer region can rescue the lethal ACDMPV phenotype and support the compound inheritance gene dosage model."

TBX4Life Initiative:



In October 2022, the ACDA connected with fellow patient advocacy group, the TBX4Life initiative. Dr. Eric Austin and Anton Morkin are the founders and leaders of TBX4Life, which is an international

initiative to improve the quality of life of those affected by **TBX4 Syndrome**, and to find a cure. TBX4 (along with ACDMPV, CAD, AcDys) is a subtype of lethal lung developmental disorders (LLDDs). The ACDA has a handful of families in our database with a retracted or differential diagnosis to TBX4. It is our hope to connect these families with Dr. Anton and Mr. Morkin in order to broaden the network of TBX4Life. Please visit the **TBX4Life initiative to learn more.**

ATS Request for Full Applications – 2022 Research Grant:



The American Thoracic Society (ATS), with funding from the Alveolar Capillary Dysplasia Association (ACDA) and The David Ashwell currently Foundation, is accepting applications for up to \$50,000 for scientific research studies and/or clinical research studies related Alveolar Capillary Dysplasia/misalignment of the pulmonary veins (ACDMPV). The ATS encourages all U.S. and international researchers interested in studying ACDMPV to consider applying for 2022 funding. The Letter of Intent Submission deadline closed in September 2022 but the ATS will continue accepting Full **Application** submissions, even if an LOI was not submitted. The Full Application Deadline is January 10, 2023. See full information HERE.



FUNDRAISING NEWS

Donations:

To make a secure tax deductible donation to the ACDA, please visit our website.



acdassociation.org/donate

The ACDA is a 501(c)(3) non-profit, taxexempt organization as designated by the Internal Revenue Code of the United States.

Balance of ACDA account:

The unallocated balance of the ACDA bank accounts as of

Update from AmazonSmile:



The ACDA was issued a donation from the AmazonSmile Foundation as a result of AmazonSmile program activity

between April 1 and June 30, 2022. To designate the ACDA as your charity, please follow the link below so that all of your eligible shopping will benefit the ACDA:

http://smile.amazon.com/ch/46-2915711

Update from Spreadshirt:

The ACDA earns a commission equal to 20% of every product sold. Thank you for supporting the ACDA.

Shop Now



Items with the ACDA logo are available for purchase in our Spreadshirt store HERE. The accrued commission payment from Spreadshirt

between May 17, 2022 and October 13, 2022 is

Please continue to shop at our store as new items and new features are added regularly. You have the option to customize your products by choosing "Create," including adding your child's name or picture to most items featuring the ACDA logo. Don't forget the ACDA earns a commission equal to 20% of every product sold! Look for FREE SHIPPING on everything from October 19-23, 2022! No code needed!

Donations Received:

Thank you to the following families and friends that have made donations to the ACDA since the last ACDA Notes:

| Donor | In Memory Of |
|-------|--------------|
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Fundraising Idea (SO EASY!!):



Please consider participating in the ACDA's eighth annual coffee fundraiser this holiday season through Giving Bean. In addition to "online" purchases with 25% of every bag sold online donated to the ACDA, "in-person" and paperless express sales can also easily be organized with 40% of such in-person sales contributed to the ACDA! Additionally, the ACDA logo is printed directly on the coffee bag label if more than 50 bags are ordered through such inperson or paperless express sales. Please contact us to get involved!

Matching Gifts:

MATCHING GIFTS

1. You donate.

2. THEY MATCH.

3. DOUBLE THE IMPACT.

Don't forget about Matching Gifts – If your employer has a Matching Gifts Program for charitable organizations, your contributions to

ACDMPV research can grow! Please check with your Human Resources department. The ACDA Tax Identification Number is 46-2915711.

The ACDA extends our sincere thanks to AMC Theaters, Bank of America, Chevron, Goldman Sachs, Google, Humana, Schneider Electric, Tokyo Electron and Verisk Analytics for their matching gifts for ACDMPV research!

#GI¥INGTUESDAY December I, 2022 DØNATE

GivingTuesday is а global generosity movement unleashing the power of people and organizations to transform their communities and the world. GivingTuesday was created in 2012 as a simple idea: a day that encourages people to do good. Over the past seven years, it has grown into a global movement that inspires hundreds of millions of people to give, collaborate, and celebrate generosity. The ACDA raised \$1,600 (2017), \$2,630 (2018), \$2,500 (2019), \$2,300 (2020) and \$2,105 (2021) on this one day alone!

· What: A global day of giving

• When: The Tuesday following Black Friday

(December 1, 2022)

• Where: Everywhere. Organizations all over

the world participate

The biggest giving month of the year is right around the corner. In fact, about a third of all charitable giving happens in December. Please help us successfully kick off the giving season by promoting the #GivingTuesday campaign on December 1, 2022 in support of the ACDA.



REMEMBERING OUR BABIES Welcome to New Families A sad but warm welcome to the following newly registered families:



SAFE ARRIVALS!

Congratulations on the birth of the following little siblings in our ACDA registered families:



ACDA COMMITTEE POSITIONS

Please check our website for a full listing of Board and Committee members and let us know if you would like to get involved.

http://acdassociation.org/board-members

CONNECT WITH US

Facebook:

- Official ACDA Public Page
- Parent Group (private)
- Family Group (private)

Read about the private groups with information on how to join.

Instagram:

• Follow us <u>alveolar_capillary_dysplasia</u>

Twitter:



Follow us <u>@acdassociation</u>Website:

acdassociation.org

Email:

President@acdassociation.org (Eliza Rista)
Secretary@acdassociation.org (Renee Murray)
Treasurer@acdassociation.org (John Rista)

A note from the President: We absolutely want to hear from you as to how we can best meet your needs with respect to information about ACDMPV and also grief support. We are here to help in any way we can. Please know we always want to hear your ideas and we love community involvement on any level. Please never hesitate to contact me at President@acdassociation.org.

Regards, Eliza Rista, mom to Johnny (February 20, 2013 – March 4, 2013)