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	Key Opinion Leader/ Consultant Fees	Travel Reimbursement	Research Support
Sanofi Genzyme	x	x	x
Takeda			x
NNPDF			x
Ara Parseghian Medical Research Fund			x
BioMarin			x
Cure Sanfilippo Foundation			x
Dana's Angels Research Trust			x
Firefly Fund			x
Noah's Hope			x
Orchard Therapeutics			x
PassageBio			x
Sio Therapeutics			x
Traverse Therapeutics			x
Ultragenyx			x

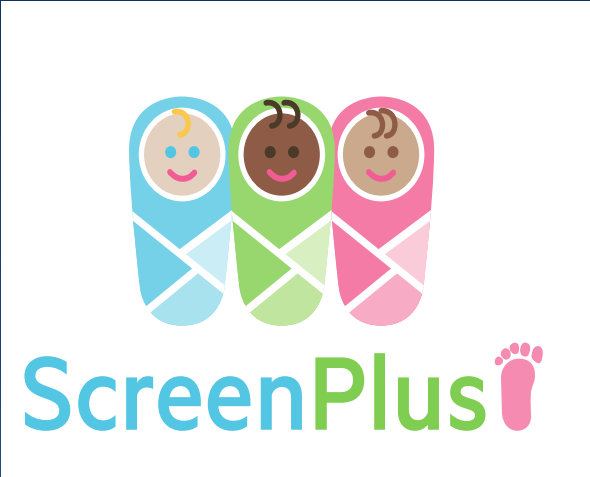
ScreenPlus  
Support

# ScreenPlus: A Comprehensive, Flexible, Multi-disorder Pilot Newborn Screening Program

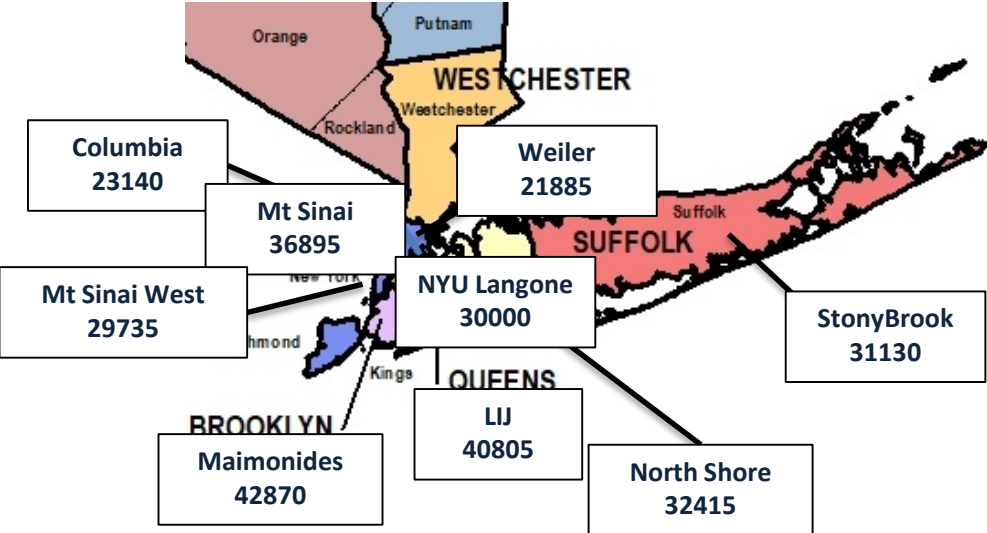
## Contents

- Overview and logistics of pilot screen
- Programmatic infrastructure
- ELSI studies
- Current status

# Overview and Logistics



# Pilot Hospitals and Recruitment



## Pilot Hospital Criteria

- High birth rate
- Ethnically diverse community
- NYS NBS referral site

## Recruitment Goal

- 175,000 babies over five years
- Total estimated births: ~290,000
- Estimated consent rate: ~73%

# Informed Consent

- Direct, in person one-on-one conversation between recruiter and parents shortly after birth
- Coordinators are bilingual and brochures are translated into 8 languages
- Parental consent automatically creates RedCap form and emails parents a copy of the consent/brochure

سوالات اور تبصروں کے لیے،  
اہم سے رابطہ کریں

ScreenPlus | 718.741.2496  
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at Montefiore  
The University Hospital for Albert  
Einstein College of Medicine

نومولود بچے کی اسکریننگ  
کے لیے ایک پائلٹ پروگرام

QR کوڈ ویب سائٹ ملاحظہ کرنے کے لیے  
اسکرین کریں۔

ScreenPlus

پائلٹ ہسپتال میں آپ کے ScreenPlus  
بچے کی پیدائش کے بعد، ملاحظہ کرنے یا  
میں گفتگو کرنے کے لیے ایک مطالعاتی  
ممبر آپ سے ملاقات کرے گا، آپ مزید  
WWW معلومات کے لیے، ہماری ویب سائٹ  
ScreenPlusNY.org، ملاحظہ کر  
سکتے ہیں۔

اگر آپ کے فیملی کے دوران یہ آپ کو نظر انداز  
کرے، تو یہ آپ بھی آپ کو حال کر کے بند کر  
سکتے ہیں، آپ یا شامل ہونے میں دلچسپی  
اڑھتے ہیں

مسئلہ کے بارے میں واقفیت حاصل کرنے  
کے بعد، آپ یہ فیصلہ کر سکتے ہیں کہ آیا  
کے عوارض کوئی ScreenPlus آپ اضافی  
اپنے بچے کی اسکریننگ کروانا چاہتے ہیں۔

کے تحقیق کار ScreenPlus آپ کا فیصلہ  
اگر ضروری ہے، اور آپ تیار ہیں

میں ScreenPlus کیا میرا  
شرکت کرنا ضروری ہے؟

ہیں، یہ آپ کی مرضی پر منحصر ہے، اگر آپ اضافی  
جانچوں نہ کرانے کا فیصلہ کرتے ہیں، تب بھی آپ  
کے بچے کی معمول کی اسکریننگ جانچوں ہوں گی۔

¿Cómo puedo inscribirme  
en ScreenPlus?

Después de que su bebé nazca  
en un hospital piloto de  
ScreenPlus, un miembro del  
estudio la visitará para hablar  
del estudio. También puede  
visitar nuestro sitio web, www.  
ScreenPlusNY.org, para obtener  
más información.

Si no nos reunimos durante su  
estancia, aún podemos llamarla  
para ver si le interesa inscribirse.

Después de obtener  
información sobre el estudio,  
puede decidir si quiere que  
le hagan una prueba a su bebé  
para detectar otros trastornos  
de ScreenPlus.

El investigador de ScreenPlus  
registrará su decisión, y ya  
podrá comenzar!

¿Tengo que participar en  
ScreenPlus?

No. Es su elección. A su bebé le  
harán las pruebas de rutina para la  
detección de trastornos del recién  
nacido, incluso si usted decide que no  
le hagan otras pruebas.

Felicidades por el nuevo miembro de  
la familia. ¡Le deseamos lo mejor!

Para hacer preguntas y  
comentarios, ¡comuníquese  
con nosotros!

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El estudio recibe el apoyo de los  
Institutos Nacionales de Salud (National  
Institutes of Health) y se hace con el  
Departamento de Salud del Estado de  
Nueva York (New York State Department  
of Health). Visite nuestro sitio web para  
encontrar una lista de patrocinadores de  
defensa y del sector que dan más apoyo  
para ampliar nuestro alcance.

Escanee el código QR para  
visitar el sitio web.

Programa  
de detección de trastornos  
del recién nacido

SCREENING

All babies born in New York are  
tested for certain rare disorders that  
can affect their health, because early  
diagnosis allows early treatment.

RESEARCH STUDY EXAMINING  
ADDITIONAL TESTING FOR  
RARE DISEASES

ScreenPlus is a research study that  
will screen New York babies born at  
certain pilot hospitals for 14 additional  
disorders. These results can help  
us see how well newborn screening  
works for these rare conditions.

FOLLOW UP CARE AND  
FAMILY SUPPORT

In the rare case that your baby  
receives abnormal results, the  
ScreenPlus doctors will work with your  
pediatrician to follow up and monitor  
your baby.

There will be no extra blood  
taken from your baby  
The ScreenPlus testing will be  
done at the New York State  
Newborn Screening Laboratory using  
the sample that was already taken  
from your baby's heel for routine  
newborn screening.

Find out results by the time your  
baby is 21 to 28 days old  
Your baby's ScreenPlus results will  
be included in their New York State  
Newborn Screening Report which  
can be accessed by your pediatrician.  
If the result is positive, you will also  
be contacted directly by a  
ScreenPlus doctor.

Early Diagnosis

If your baby has one of the diseases  
on the ScreenPlus panel, it is helpful  
to know as early as possible. All  
ScreenPlus disorders have either FDA  
approved treatment or ongoing  
clinical trials.

"If there is one thing I  
have learned in our rare  
disease journey, it is  
that knowing earlier  
about the health status  
of your child is so  
much better"

- Pam Crowley Andrews  
Parent of Belle and Abby,  
children living with Niemann Pick  
Type C1 (NPC)  
Co-Founder and Executive Director,  
Firefly Fund

# ScreenPlus Panel

- Panel is fluid; disorders may be removed if added to RUSP, or added if meet criteria
- Criteria to be on ScreenPlus Panel
  - A DBS screening assay that can be multiplexed, and that is high-throughput, reasonably priced, and has had positive baseline validation studies;
  - Significant morbidity or mortality if untreated;
  - A pediatric phenotype; and
  - FDA approved treatment(s), or treatment(s) currently in clinical trial.

Initial Panel	
ASMD	Acid sphingomyelinase deficiency
CLN2	Ceroid lipofuscinosis type 2
CTX	Cerebrotendinous xanthomatosis
Gaucher	Gaucher disease
GM1	GM1 gangliosidosis
Fabry	Fabry disease
LAL-D	Lysosomal acid lipase deficiency
MLD	Metachromatic leukodystrophy
MPS II	Mucopolysaccharidosis type II/ Hunter
MPS IIIB	Mucopolysaccharidosis type IIIb/ Sanfilippo IIIb
MPS IVA	Mucopolysaccharidosis type IVa/Morquio IVa
MPS VI	Mucopolysaccharidosis type VI/ Maroteaux Lamy
MPS VII	Mucopolysaccharidosis type VII/ Sly
NPC	Niemann Pick C

# Using ScreenPlus to Enhance the Accuracy of Screening

Disorder	First Tier	Second Tier	Third Tier
ASMD	ASM	Lyso SM	DNA
CLN2	TPP1	-	DNA
CTX	Bile tetrol glucuronide	-	DNA
Fabry	GLA	Lyso Gb3	DNA
Gaucher	GBA	Lyso Gb1	DNA
GM1	GM1	-	DNA
LALD	LAL	-	DNA
MLD	Sulfatides	ARSA	DNA
MPS II	I2S	DBS GAG	DNA
MPS IIIb	NAGLU	DBS GAG	DNA
MPS IVa	GALNS	DBS GAG	DNA
MPS VI	ARSB	DBS GAG	DNA
MPS VII	GUSB	DBS GAG	DNA
NPC	Bile Acid B	COT	DNA

- We will use at least two tiers per disorder prior to call out
- Can biomarkers and DNA testing on the DBS enhance accuracy?
  - Reduce false positives?
  - Predict phenotypic severity?



# Longitudinal follow up

- For new and complex disorders, capturing long term follow up data is critical
  - NBS lab may not be able to assess accuracy of their assay if/until patient expresses phenotype
  - Confirmatory testing results may be unclear until patient does or does not express phenotype
  - Children with later onset disease usually do not need immediate treatment; inability to predict if/when obligates monitoring
  - How do we know if there is a benefit to early detection?

MLD, Positive and Uncertain, 0-36 m

	Baseline (~3-4 wks of age)	Q 4 m
Neuro exam	x	x
Brain MRI*	x	x
U sulfatides	x	x
Mullen Dev Assessment	x	x
NCV		x
Ophthalmologic Exam		x
VEP		x
BAER		x
Clinical feeding assessment		x

**Indications to Refer for Clinical Trial or BMT**

Genotype: Known late infantile variants (refer to leukodystrophy center immediately)

Clinical status: Reproducible NCV or MRI change abnormalities  
Worsening in clinical status



# Infrastructure

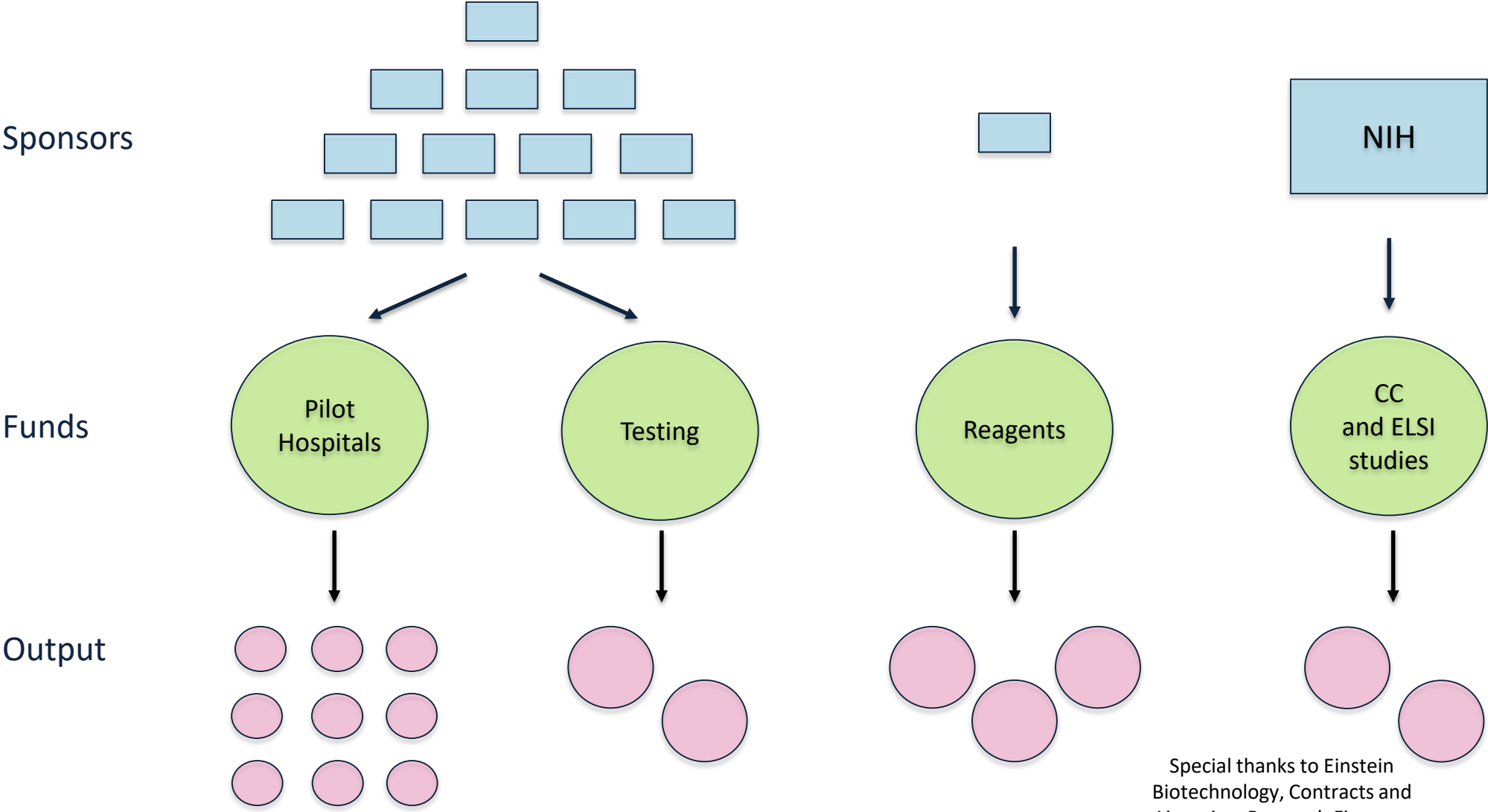


# Cost-Sharing

- We have created a unique cost-sharing infrastructure with NIH, Industry Sponsors and Patient Advocacy Groups
- All parties have a vested interest in NBS for a particular disorder(s) because they have an FDA approved therapy, are sponsoring a clinical trial, or are advocating for a RUSP nomination.
- This cooperative plan will streamline costs, while enabling the program to function at maximal efficiency



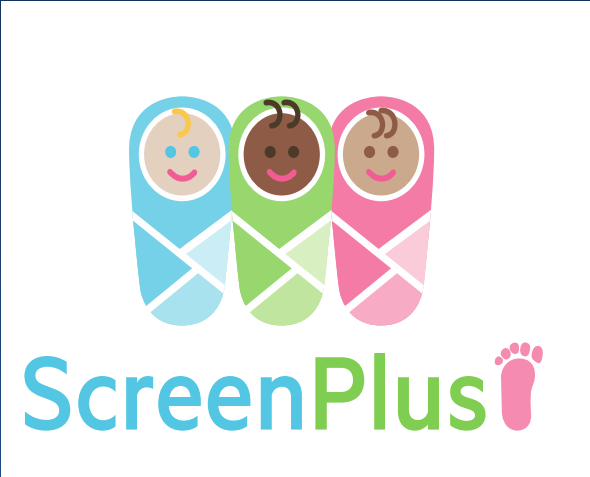
# ScreenPlus Organizational and Financial Infrastructure



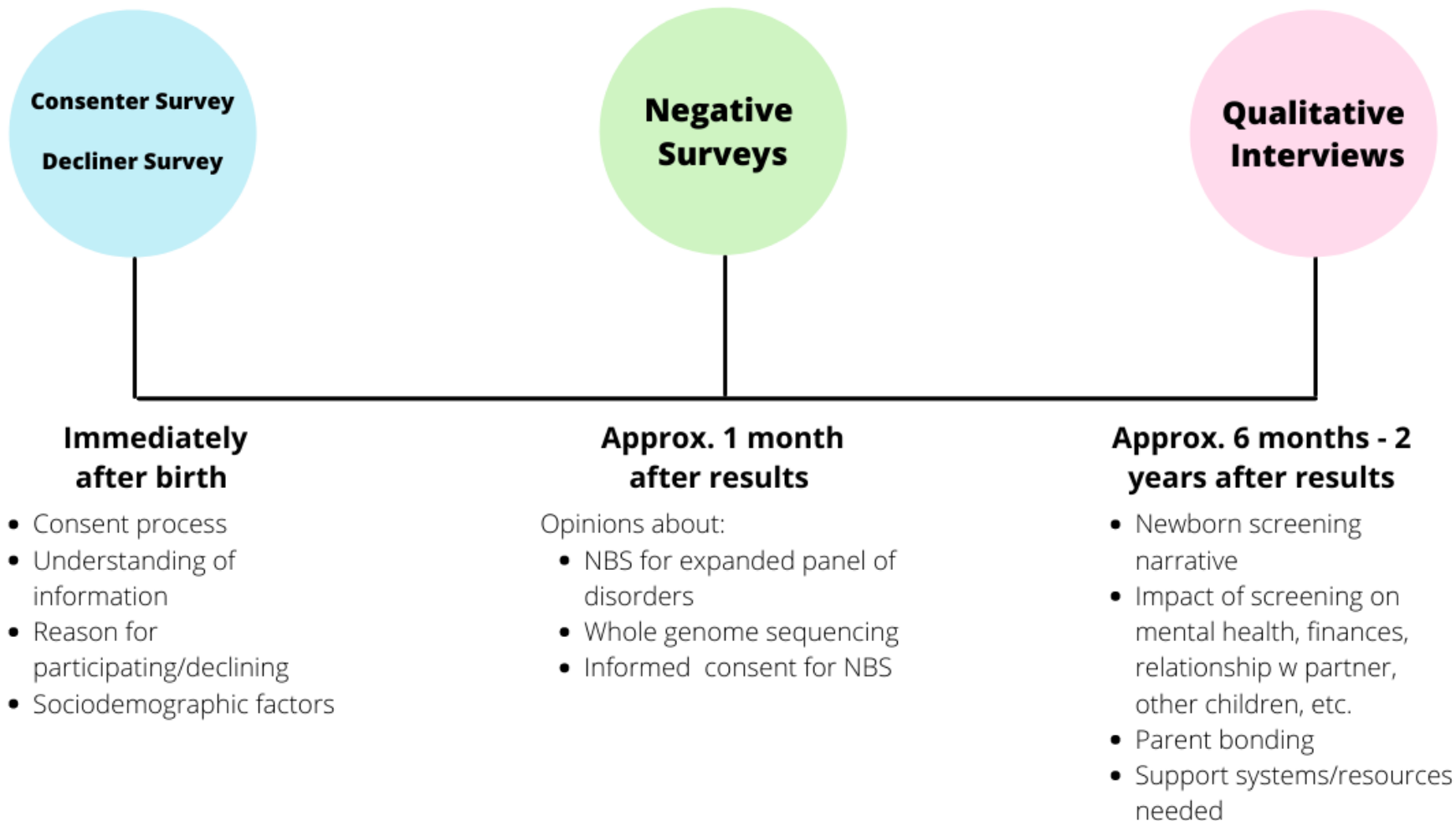
Special thanks to Einstein Biotechnology, Contracts and Licensing, Research Finance, and Legal

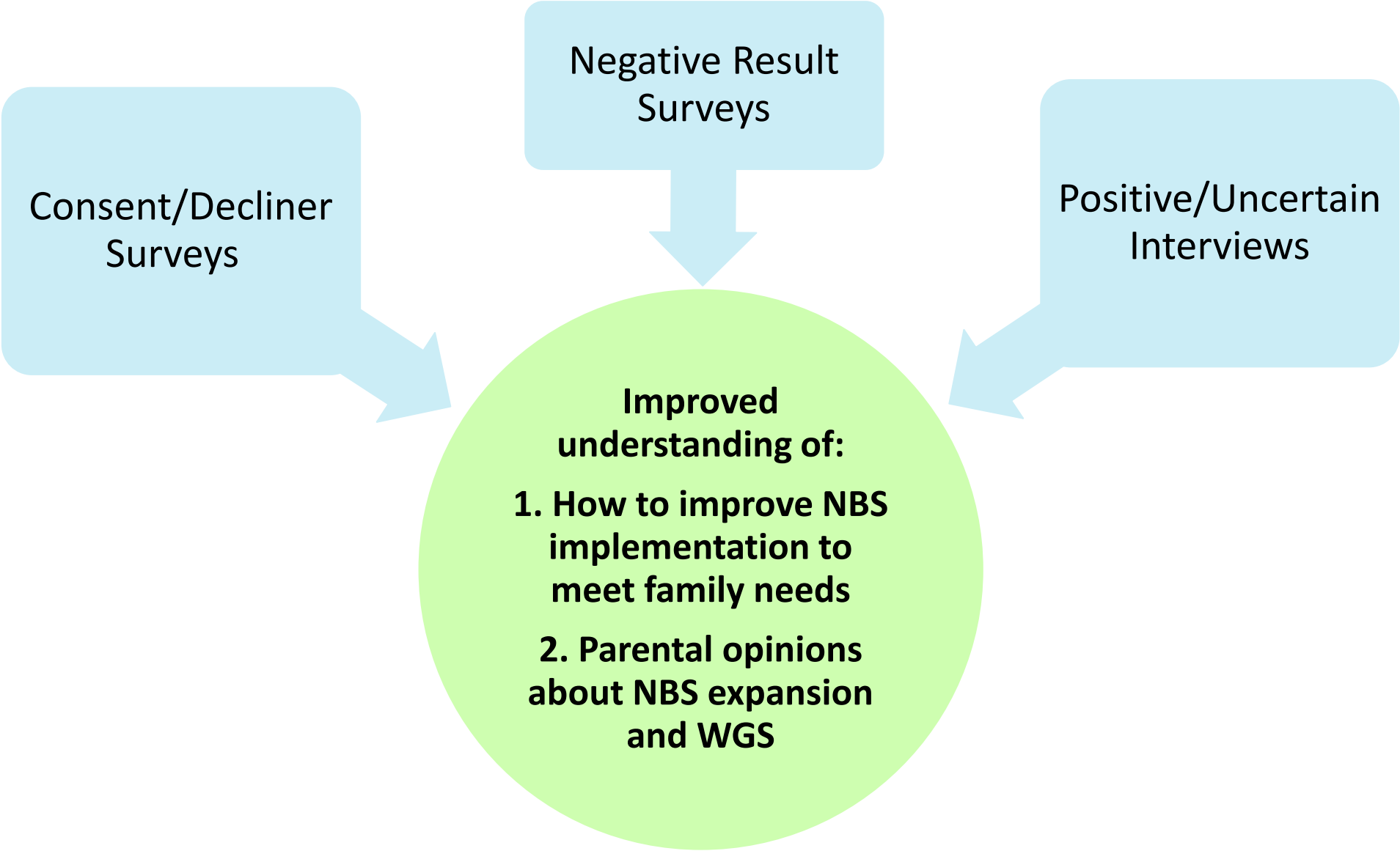


# Ethical, Legal, and Social Implications Studies

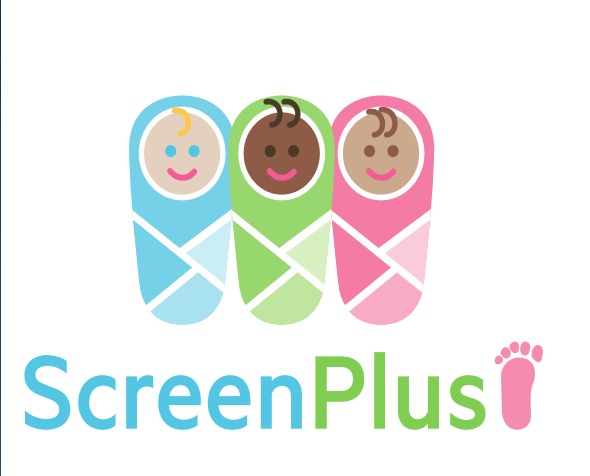


# ELSI Surveys/Interviews





# Current Status



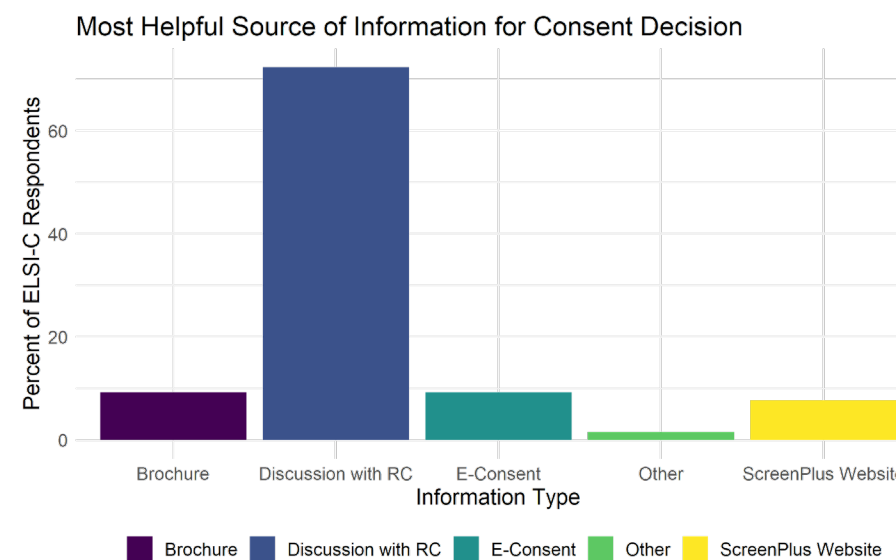
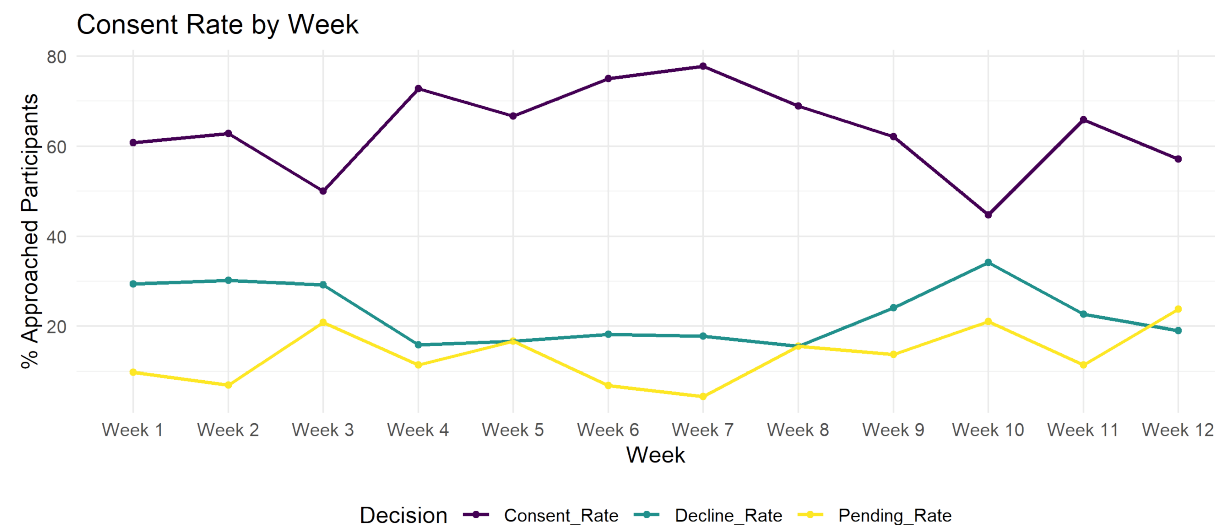


# May 10, 2021: First Baby In!



# Early Recruitment Experience

- Parental surveys about consenting experience
  - Amount and clarity of information?
  - What materials did you use?
  - How was the e-consent?
  - What was the most helpful in your decision to participate?
  - What was the main reason why you participated?
  - Demographic information
- Decliner surveys
  - What were your reasons for choosing to not participate in ScreenPlus?
  - Demographic information



## Next Steps

- We are in the process of contracting with other pilot hospitals
  - We hope to have other hospitals live within next few months
- Based on early feedback:
  - We are continuing to refine recruitment script and materials
  - We are developing passive e-consent for discharged parents to use at home
- ELSI surveys and qualitative studies
  - We are seeking feedback from our Community Advisory Board on study materials and will continue to refine our instruments to ensure they are appropriate for parents

# Acknowledgements

## ScreenPlus Team

Coordinating Center  
Albert Einstein College of  
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## Community Advisory Board

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Pam Crowley-Andrews, NPC Firefly Fund  
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Jack Johnson, Fabry Support & Information  
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The content is solely the responsibility of the presenters and does not necessarily represent the official views of the National Institutes of Health

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