

Early Peanut Introduction in Infants to Prevent Peanut (and other) Allergies

Clinical Decision Support (CDS) Toolkit



UNC
INSTITUTE FOR HEALTHCARE
QUALITY IMPROVEMENT

Disclaimer:

This toolkit serves as a guide and starting point for your clinical settings. As evidence-based practice often goes, we must work to keep up with the pace of new findings. There are already new publications and recommendations for the early introduction of allergenic foods!

One PEARL:

Early introduction should be a broader discussion with caregivers of infants than just peanuts. Use this tool to encourage introductions of all allergenic foods in safe and developmentally appropriate ways for infants.

One Essential Read:

DOI: [10.1016/j.jaip.2020.11.002](https://doi.org/10.1016/j.jaip.2020.11.002)

FULL TEXT ARTICLE

A Consensus Approach to the Primary Prevention of Food Allergy Through Nutrition: Guidance from the American Academy of Allergy, Asthma, and Immunology; American College of Allergy, Asthma, and Immunology; and the Canadian Society for Allergy and Clinical Immunology 

Initiative Lead and Contact
Lauren Herlihy, DNP, CPNP
Pediatrics, Allergy & Immunology

Importance

Why does this matter?

Big Picture Goals
Why Do We Care?



Background &
Problem

The prevalence of peanut allergy in children has increased more than 50% from 2001 to 2017 in the United States

Early exposure to allergens through disrupted skin barriers, as in infants with eczema, can lead to the development of food allergies

Only one in five children will outgrow peanut allergy

Allergic reactions to peanuts are the leading cause of anaphylaxis in children

Peanut allergy correlates with higher rates of accidental exposure, more severe allergic reactions

Cosme-Blanco et al., 2020; Du Toit et al., 2015; Fleischer et al., 2021; Larson et al., 2021; Lieberman et al., 2020; Obbagy et al., 2019

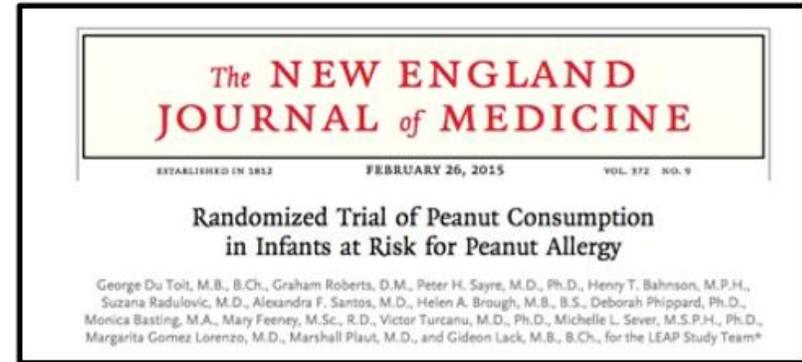


Aim

What are we trying to accomplish?

Importance

Why does this matter?

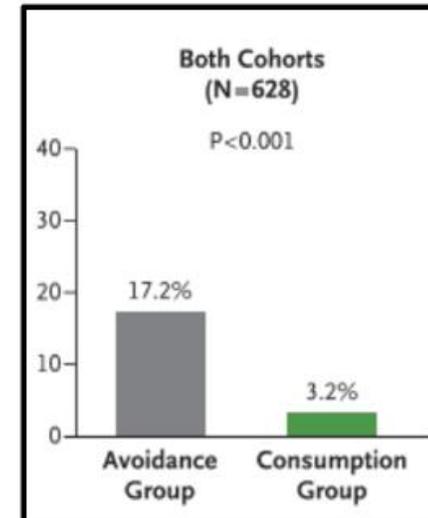


This initiative aims to increase caregiver-reported peanut consumption at 6, 9, and 12-month WCCs in outpatient pediatric clinics.

Early peanut introduction (EPI) for infants 4-6 months of age can reduce the risk of developing peanut allergy

Statistically significant difference in prevalence of peanut allergy between consumption and avoidance groups at 60 months of age

86.1% relative risk reduction for peanut allergy



Process

How does our clinic implement this initiative?

- Several primary care clinics worked closely with UNC Pediatric Allergy (Lauren Herlihy, DNP, CPNP) on a QI project based on early allergen introduction in a primary care setting.
- This is expanding from the LEAP study from 2015.
- Early allergen introduction has been shown to reduce the risk of food allergies in the future.
- Clinics tasked with discussing the introduction of peanut butter (as early as the 4-month-old WCC, but at least by the 6-month-old WCC)
- Goal for all babies to introduce peanut butter by 12 months (if clinically appropriate).
- The toolkit for implementation consists of the following clinical decision support tools:
 - EPIC smart phrases for WCC note templates
 - Provider-facing caregiver FAQ document
 - Peanut introduction handout
 - Automated reporting dashboard

Decision Support Tools
Strengthen Early Peanut
Introduction Practices and
Streamline Data Automation

[🔗](#) [📄](#)

Lauren E. Herlihy  • Cristina Collins • Kelly Reilly • Elizabeth Blyth •
Laura Gay • Priyanka Rao • Meaghan Sowers • Katherine Jordan

[Link to Spread Project Publication](#)

QUALITY REPORTS | OCTOBER 24 2023

**Early Peanut Introduction in Infants: Improving Guideline
Adherence With EMR Standardization** 

Lauren E. Herlihy, DNP, APRN, CPNP ; Elizabeth M. Walters, DNP, CPNP, RN; Jennifer P. D'Auria, PhD, RN, CPNP;
Kelly Orgel, MD, PhD; Katherine A. Jordan, MD

[Link to Pilot Project Publication](#)

EPIC Smartphrases for WCC Note Templates

4-month-old, 6-month-old and 9-month-old WCCs

Under the assessment and plan section:

Allergy Risk:

1. Family history? {UNCHCS IP LEAP Family Hx of Allergic Disease:304982216}
2. Egg? {UNCHCS IP LEAP EGG Attempt:304103346}
3. Eczema? {UNCHCS IP LEAP Yes/No Eczema:304982213}

Based on today's examination, applicable clinical testing, and history, the patient is classified with the following risk level for the development of peanut allergy and recommended course of action noted:{UNCHCS IP LEAP Risk:304975908} [Cut/Copy Instructions to AVS]

Under the HPI section:

Diet & Elimination:

Milk consumption: {Infant Milk:75906}

Fruit/Vegetable Purees: {YES:40174}

Finger Food: {YES:40174}

Eggs: {EGGS:103348:::1}

Peanut: {UNCHCS IP Peanut Containing Food:304101347:::1}

Voids/stools: {Desc; normal/abnormal w/wildcard:19060::normal}

|

12-month-old WCC

Under the assessment and plan section:

Allergy Risk:

4. Family history? {UNCHCS IP LEAP Family Hx of Allergic Disease:304982216}
5. Reaction to Egg? {UNCHCS IP LEAP EGG Attempt:304103346}
6. Eczema? {UNCHCS IP LEAP Yes/No Eczema:304982213}

Based on today's examination, applicable clinical testing, and history, the patient is classified with the following risk level for the development of peanut allergy and recommended course of action noted:{UNCHCS IP LEAP Risk:304975908} [Cut/Copy Instructions to AVS]

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Peanut: {UNCHCS IP Peanut Containing Food:304101347:::1}

Voids/stools: {Desc; normal/abnormal w/wildcard:19060::normal}

- Text in green feeds to an automated data reporting tool in EPIC
- Please do not alter, delete, or modify green text, as this will prevent data collection for your clinic's metrics
- DO NOT MAKE COPIES and RENAME THEM
- If text is not green, you do not have to record it or include it in your note
- At 12 months, data collection focuses on caregiver-reported peanut consumption

- Feel free to use your EXISTING note template for WCC visits and copy/paste the green sections
- If you prefer to use existing note templates from one of the project's established clinics, please find these templates from PRIYANKA RAO in EPIC as follows:
 - PR4MOWCC
 - PR6MOWCC
 - PR9MOWCC
 - PR12MOWCC

SmartList Details

Based on today's examination, applicable clinical testing, and history, the patient is classified with the following risk level for the development of peanut allergy and recommended course of action noted: {UNCHCS IP LEAP Risk:304975908} [Cut/Copy Instructions to AVS]

System SmartList – UNCHCS IP LEAP Risk [304975908]

Choice	Default?	Group	SDE	Context	Value
LOW RISK (none or mild eczema, no egg allergy). Early allergen introduction (EAI) guidance provided, recommending home peanut feeding, along with other allergenic foods, handout was placed in AVS.	<input type="checkbox"/>	1	UNCHCS IP LE...	Note	LOW RISK
HIGH RISK (moderate-severe eczema and/or egg allergy). Early allergen introduction (EAI) guidance provided. Recommend home peanut feeding, along with other allergenic foods. Handout placed in AVS. If the provider is concerned, caregivers are hesitant to offer peanut, egg, milk, or other allergenic foods, place an URGENT allergy referral.	<input type="checkbox"/>	2	UNCHCS IP LE...	Note	HIGH RISK
Likely peanut allergic, recommend peanut avoidance, URGENT referral to allergy	<input type="checkbox"/>	3	UNCHCS IP LE...	Note	likely peanut...
LEAP guidance discussed at previous WCC, provider concern for food allergies other than or in addition to peanut, URGENT referral to allergy	<input type="checkbox"/>	3	UNCHCS IP LE...	Note	LEAP guida...
Early allergen introduction (EAI) guidance discussed at previous WCC, infant {UNCHCS IP LEAP attempt:304982539}		4	UNCHCS IP LE...	Note	LEAP guida...

UNCHCS IP LEAP Attempt ↗

Include as label

UNCHCS IP LEAP Attempt

Default?	Choice
<input type="radio"/>	has tried peanut at home without any issues
<input type="radio"/>	has not tried peanut at home and LEAP guidance reinforced today, handout placed in AVS
<input type="radio"/>	has tried peanut at home but had symptoms and needs allergy referral

UNCHCS IP LEAP Attempt:304982539

SmartList Details

Peanut: {UNCHCS IP Peanut
Containing
Food:304101347:::1}

System SmartList – UNCHCS IP Peanut Containing Food [304101347]				
Choice	Default?	SDE	Context	Value
Yes, child eating peanut containing food.	<input type="checkbox"/>	UNCHCS IP PE...	Note	Yes, child ea...
No, solid introduction not appropriate based on developmental readiness or other contraindications.	<input type="checkbox"/>	UNCHCS IP PE...	Note	No, solid intr...
No, child has tried peanut at home but had symptoms and needs allergy referral.	<input type="checkbox"/>	UNCHCS IP PE...	Note	No, child ha...
No, child has confirmed peanut allergy.	<input type="checkbox"/>	UNCHCS IP PE...	Note	No, child ha...
No, child has not yet tried peanut-containing foods and EARLY INTRODUCTION guidance provided.	<input type="checkbox"/>	UNCHCS IP PE...	Note	No, child ha...

Updated Guidelines for Pre-Emptive Testing

Professional Organization	Last Updated (Year)	Summary of Recommendations
National Institute for Allergy and Infectious Diseases	2017	For infants 4–6 months of age with existing egg allergy and/or severe eczema, strongly consider skin prick and/or serum IgE testing before introduction.
Australasian Society of Clinical Immunology and Allergy	2017	Introduce without testing for all infants between 4 and 12 months of age, including those with severe eczema and/or existing food allergy.
American Academy of Pediatrics	2019	For infants 4–6 months of age with existing egg allergy and/or severe eczema, skin prick test by an allergist is preferred or serum IgE testing, followed by referral to allergist if positive.
British Society for Allergy and Clinical Immunology	2019	Systematically screening all infants with severe eczema is not currently available in most areas and may not be effective. Introduce without testing for all infants, including those with severe eczema and/or existing food allergy.
American Academy of Allergy, Asthma and Immunology American College of Allergy, Asthma and Immunology Canadian Society for Allergy and Clinical Immunology	2021	No routine screening. When deemed appropriate, medical providers should discuss the role of IgE testing before introduction of foods as a method to determine whether the food will be introduced at home or under supervision in the office setting.
Canadian Society of Allergy and Clinical Immunology	2021	Preemptive screening is not recommended.

FIGURE 2
Differences in screening recommendations from various professional organizations.

Abrams et al, 2023

- Please note that our previous publication (Herlihy et al., 2023) included a workflow algorithm for pre-emptive screening based on the 2017 (Togias et al.) guidelines for peanut allergy risk. We have phased out pre-emptive screening based on risk.
- Current guidelines no longer recommend testing prior to peanut or other early allergen introduction in infants

Early Peanut Introduction in Babies: Caregiver FAQ

Can I use a pre-packaged allergen kit instead of feeding peanut butter to my baby?

-There are many popular products on the market that advertise early allergen introduction. They typically have starter products containing peanuts, milk, and egg. The packets geared toward older infants often include nine major allergens. Key Takeaways: 1) Caregivers can use these products; however, good anticipatory guidance is needed about quantities and frequency of ingestion. 2) Always remind caregivers NOT TO USE THE PACKETS if the baby has a KNOWN allergy to one of the allergens in the packets. 3) Using the packets for desensitization therapy for known allergies could be dangerous and lead to allergic reactions.

Someone else in our household is allergic to peanuts. Is it okay to introduce peanuts to my baby?

-Yes, with proper precautions for the allergic child. If offering the baby peanut-containing foods, place the child in the highchair for eating. Wipe surfaces or utensils with warm, soapy water.

-Right now, it's important to feed your baby peanut butter. Caregivers can try this when other children are at school or napping.

-If an allergic child touches peanut butter, they may have localized symptoms (hives, rash), but systemic allergic reactions and anaphylaxis occur due to

CONSUMPTION.

-If the caregiver needs additional support, consider offering two-bite feed introductions in the office for those with allergic family members. Caregivers must be educated to continue trying at home.

My baby is allergic to peanuts or we have a family history of allergies to nuts. Can we test for nut allergies in addition to peanuts?

-If testing before introduction makes the caregiver feel more comfortable, it can be an option. Remember that false positives can lead to unnecessary avoidance, and we try not to medicalize the introduction of foods.

-Additional testing may be a separate visit outside of the well child check and take a bit longer to get results. We can schedule a different visit to discuss this.

Isn't peanut butter still a choking hazard for babies?

-Yes! Mixing peanut butter with the suggested ingredients on the handout reduces the peanut butter's thickness, making it a safe way to offer peanut butter without concerns for choking.

In our family/culture, we do not typically consume peanut butter. Does my baby still need to consume peanut butter?

-Yes. Though your family may not offer peanut butter as a cultural norm, one of the safest ways for young children to eat peanut-containing foods is by thinning peanut butter (reference the handout with mixing directions). Whole nuts and nut fragments are choking hazards.

-Consistently offering your baby peanut butter during infancy and young childhood will allow them to consume other peanut products throughout their lives, as observed in various cultures.

What other peanut-containing foods are available besides peanut butter?

-Some babies enjoy eating peanut 'puffs.' These are available online and in stores. Please note that babies must consume about 15-20 puffs, depending on the brand, to meet the target of 2g of protein per serving. Peanut powder is commercially available, and caregivers can mix 2 teaspoons like peanut butter.

What kind of peanut butter should we purchase?

-We understand some peanut butter has sugar and other additives. It's not necessary to buy a specific type of peanut butter or high-end organic peanut butter. Try to buy peanut butter with as few ingredients as possible.

Does WIC cover peanut butter?

-WIC only covers peanut butter before age 1 if the baby is breastfeeding.

Is peanut allergy common or likely in my child's race/ethnicity?

-The rate of increase in self-reported food allergy is highest in Black children, followed by Hispanic children, and lowest in non-Hispanic white children. The prevalence of food allergy in children over the last 20 years is about 8%. (1 in 13 kids and 2 in every classroom are easily visualized statistics).

Can we just go to an allergist first?

-Our offices collaborate closely with our allergy colleagues. Referrals to allergists may delay the introduction of peanut-containing foods due to the wait time for new patient appointments. Delaying the introduction of peanuts can actually increase the risk of developing a peanut allergy. We're recommending introduction for your baby's diet because delays in peanut introduction can increase the risk of developing peanut allergy.

Handout for Top 9 Allergens (Available in English & Spanish)

Preventing food allergies with introduction during your baby's first year

The best way to decrease your child's risk of developing a food allergy is introducing common allergens into their diet early. You can introduce these foods once your baby starts solids—at around 6 months.* The recommendations listed below are based on current research; however, it's OK if your baby doesn't eat the full suggested amount. Trust their hunger and fullness cues and know you can always try offering again.

FOOD TYPE	HOW TO INTRODUCE	HOW MUCH TO OFFER
Offer when your baby is around 6 months old*		
 Peanut	Offer creamy peanut butter, or powdered peanut butter, mixed with a food your baby likes, like a ripe banana or infant oatmeal. You can also use breastmilk or infant formula to thin the mixture. Safety note: Don't offer chunky peanut butter or whole peanuts—these are choking hazards. Ensure peanut butter doesn't contain honey.	2 teaspoons
 Egg	Offer egg mashed with purees, breastmilk or formula, or in bite-sized pieces if your baby is eating finger foods. Scrambled eggs can be tricky at first, so we recommend starting by hard boiling and mashing an egg.	1/3 of a well-cooked egg
 Milk	Offer plain, unsweetened, full-fat yogurt. You can mix with your baby's favorite puree. Safety note: Cow's milk is not a recommended substitute for breastmilk or formula in your baby's first year.	2 tablespoons
 Wheat	Offer infant wheat cereal, or whole-wheat toast or pasta.	2 tablespoons

Once you introduce a potential allergen (if you don't recognize any signs of reaction), continue to offer that food frequently as part of your family's regular diet. You don't have to stick with a strict schedule, but it's important for your baby's immune system to "remember" these foods.

Your baby may be ready for solid foods if they:

- Have good head and neck control
- Can sit up in a high chair without slumping over
- Show interest in food (e.g., lean toward food, open their mouth for food, reach for a spoon)
- Can close their mouth around a spoon and move food into their mouth

In addition to the EPIC smart phrases in the WCC note template, the initiative collects data on placing the 2-page introduction handout into the patient AVS. Type as follows:

.cpcavshomepeanut and then click English or Spanish (the smart phrase retains the same name as before, though it includes other allergens)

The handout in the pilot and spread projects was originally peanut instructions only, but the emphasis on early introduction of other allergenic foods led us to adopt a more inclusive tool (reproduced with permission from Emory University and Children's Healthcare of Atlanta)

Handout for Top 9 Allergens (Available in English & Spanish)

FOOD TYPE	HOW TO INTRODUCE	HOW MUCH TO OFFER
Aim to offer by the time your baby is 9 months old		
 Soy	Offer pureed tofu or plain, unsweetened soy-based yogurt.	2 tablespoons
 Fish	Offer a variety of low-mercury fish, like salmon or tilapia. You can puree fish and mix it with one of your baby's favorite foods. Breastmilk or formula can also help thin the mixture.	1 ounce
 Shellfish	Offer a variety of shellfish with minimal added seasonings or salt. Mash or cut into bite-sized pieces depending on your child's developmental stage.	1 ounce
 Sesame	Offer hummus, which contains tahini (sesame paste).	3 teaspoons
 Tree nuts	Offer a variety of smooth nut butters, like cashew, pecan or walnut without added sugar. You can thin nut butter using breastmilk or formula. Safety note: Don't offer chunky nut butter or whole nuts—these are choking hazards. Ensure nut butter doesn't contain honey.	3 teaspoons

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- Can close their mouth around a spoon and move food into their mouth

Handout for Top 9 Allergens (Available in English & Spanish)

Prevención de alergias alimentarias durante el primer año del bebé

Preventing food allergies with introduction during your baby's first year

Para minimizar el riesgo de alergias alimentarias, se recomienda introducir alérgenos comunes en la dieta del bebé lo antes posible. Puede empezar a ofrecer estos alimentos cuando comienza con los alimentos sólidos, alrededor de los 6 meses. * Las siguientes recomendaciones se basan en la investigación actual; sin embargo, no es necesario que el bebé ingiera la porción completa. Confíe en las señales de hambre y saciedad del bebé y recuerde que siempre puede volver a ofrecerle el alimento en otro momento.

TIPO DE ALIMENTO	CÓMO INCORPORARLO	¿CUÁNTO OFRECER?
Cuando el bebé tiene alrededor de 6 meses*		
 <p>Maní</p>	<p>Ofrézcale mantequilla de maní cremosa o mantequilla de maní en polvo mezclada con un alimento que le guste, como banana madura o avena para bebés. También puede diluir la mezcla con leche materna o fórmula infantil.</p> <p>Nota de seguridad: No le ofrezca mantequilla de maní en trozos ni maní entero ya que puede tener riesgo de asfixia. Asegúrese de que la mantequilla de maní no contenga miel.</p>	2 cucharaditas
 <p>Huevo</p>	<p>Ofrézcale huevos machacados con purés, leche materna o fórmula, o en trozos pequeños, si el bebé come con las manos. Al principio, preparar huevos revueltos puede ser complicado, por eso recomendamos que comience con huevos hervidos machacados.</p>	1/3 de un huevo bien cocido
 <p>Leche</p>	<p>Ofrézcale yogur natural, sin azúcar y entero. Puede mezclarlo con el puré favorito del bebé.</p> <p>Nota de seguridad: No se recomienda el consumo de leche de vaca como sustituto de la leche materna o de fórmula durante el primer año del bebé.</p>	2 cucharadas
 <p>Trigo</p>	<p>Ofrézcale cereales de trigo para bebés, o tostadas o pastas de trigo integral.</p>	2 cucharadas

Luego de introducir un alimento alérgeno y si no observa ningún signo de reacción, continúe ofreciéndole ese alimento como parte de la dieta habitual. Si bien no es necesario cumplir con un horario estricto, es importante que el sistema inmunitario «recuerde» estos alimentos.

- Quizá su bebé ya esté listo para incorporar alimentos sólidos si:
- Controla bien la cabeza y el cuello.
 - Se puede sentar en la silla alta sin inclinarse.
 - Muestra interés en la comida (por ejemplo, se inclina hacia la comida, abre la boca para comer, toma una cuchara)
 - Sella los labios alrededor de la cuchara y se lleva la comida a la boca.

Handout for Top 9 Allergens (Available in English & Spanish)

TIPO DE ALIMENTO	CÓMO INCORPORARLO Intente ofrecerlos antes de los 9 meses.	¿CUÁNTO OFRECER?
 <p>Soja</p>	<p>Ofrézcale puré de tofu o yogur natural a base de soja sin azúcar.</p>	<p>2 cucharadas</p>
 <p>Pescado</p>	<p>Ofrézcale distintos tipos de pescados con bajo contenido de mercurio, como salmón o tilapia. Puede hacer puré de pescado y mezclarlo con uno de los alimentos favoritos del bebé. Puede usar leche materna o fórmula para diluir la mezcla.</p>	<p>1 onza</p>
 <p>Mariscos</p>	<p>Ofrézcale diversos mariscos con muy pocos condimentos o sal. Tritúrelos o córtelos en trozos pequeños, según la etapa de desarrollo en el que esté su bebé.</p>	<p>1 onza</p>
 <p>Sésamo</p>	<p>Ofrézcale humus, que contiene tahini (pasta de sésamo).</p>	<p>3 cucharaditas</p>
 <p>Frutos secos</p>	<p>Ofrézcale diversos tipos de mantequillas de frutos secos suaves, como de castañas de cajú, nuez pecana o castañas sin azúcar. Puede diluir la mantequilla de nueces con leche materna o fórmula. Nota de seguridad: No le ofrezca mantequilla de nuez en trozos ni nueces enteras ya que puede tener riesgo de asfixia. Asegúrese de que la mantequilla de nueces no contenga miel.</p>	<p>3 cucharaditas</p>

Luego de introducir un alimento alérgeno y si no observa ningún signo de reacción, continúe ofreciéndole ese alimento como parte de la dieta habitual. Si bien no es necesario cumplir con un horario estricto, es importante que el sistema inmunitario «recuerde» estos alimentos.

Quizá su bebé ya esté listo para incorporar alimentos sólidos si:

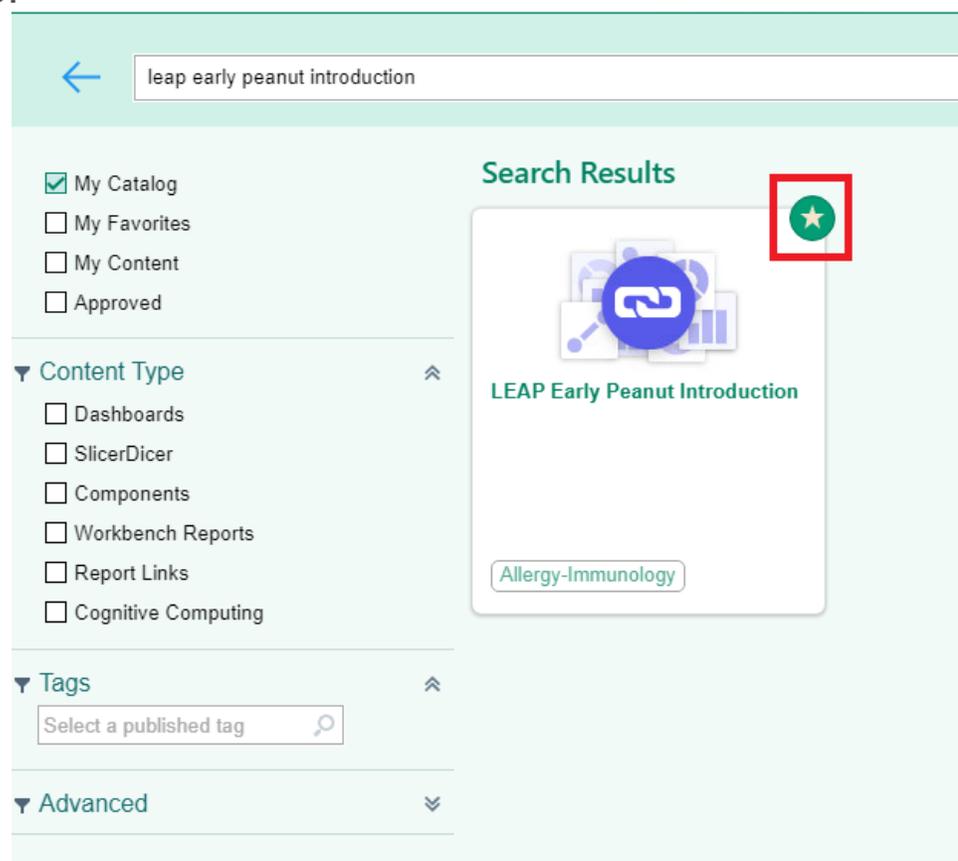
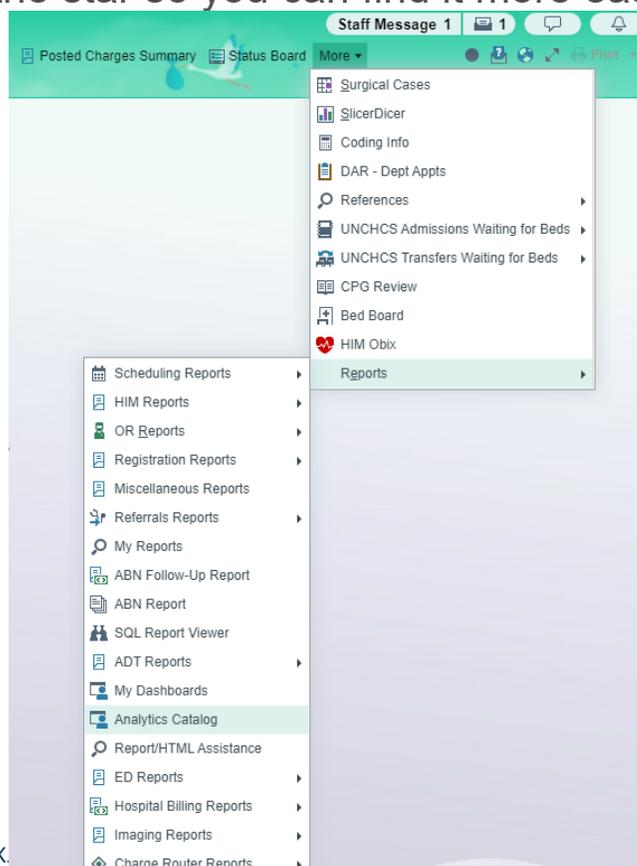
- Controla bien la cabeza y el cuello.
- Se puede sentar en la silla alta sin inclinarse.
- Muestra interés en la comida (por ejemplo, se inclina hacia la comida, abre la boca para comer, toma una cuchara)
- Sella los labios alrededor de la cuchara y se lleva la comida a la boca.

Se permite su reproducción por cortesía del Dr. Brian Vickery, Emory University y Children's Healthcare of Atlanta.

How Do We Track Our Progress?

Step 1. Email [June Thompson](#) and ask her to add your clinic to the Business Objects report in Epic.

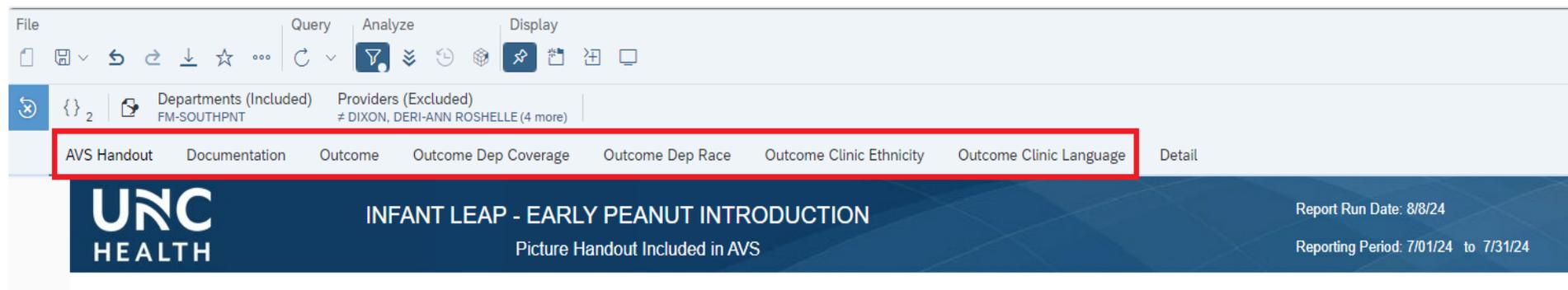
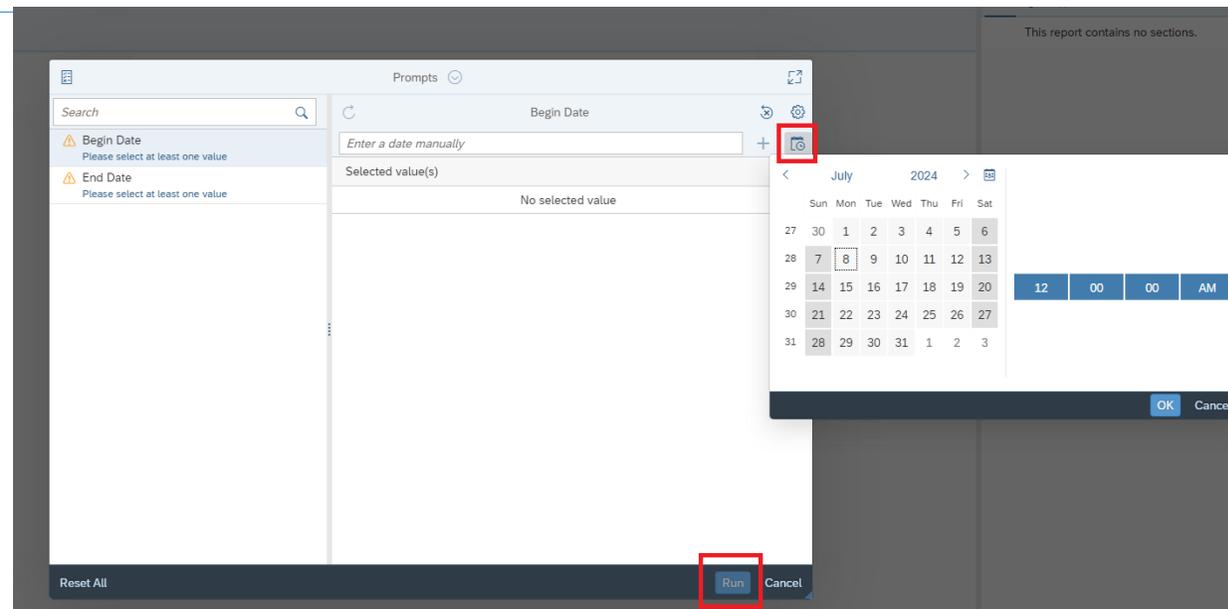
Step 2. Access the report, "LEAP Early Peanut Introduction" through "Analytics Catalog" and mark it as a favorite by clicking the star so you can find it more easily next time!



How Do We Track Our Progress?

Step 3. Your browser will open a new window. From there, select the desired start and end dates for the report by clicking the calendar and clock icons on the right. Once you've chosen the dates, click "Run" at the bottom.

The report will display the data from all the clinics involved in this project and the three metrics we are tracking. You can navigate through the different metrics by clicking on "AVS Handout, Documentation and Outcome." The other options will show stratified data for the outcome measures by coverage, race, ethnicity, and language.



How Do We Track Our Progress?

The report will show by default the results from all the clinics participating in this project. To view only your clinic's performance, click on "Departments," deselect the other clinics, and then click "OK."

