A Program Evaluation of a Cystic Fibrosis Transition Program at an Academic Medical Center



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DNP Scholarly Project Team

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Background and Significance

- Advances in drug therapies = more patients with cystic fibrosis are living into adulthood than ever before
- Median age of survival increasing
 - 0 1970 = 16
 - \circ 2015 = 32
 - 2019 = 48 (Cystic Fibrosis Foundation, 2019; West & Mogazel, 2016)
- Impact of CFTR Modulators



Background and Significance

- 52.7% of the patient population with CF are over the age of 18 (CFF, 2019).
- Demand for disease-specific adult services:
 - family planning
 - o fertility issues
 - o long-term complications and age-related changes (Coyne et al., 2017)



Background and Significance

- Planned transition
 - Gradual process
 - Early in adolescence → transfer
 - A systematic approach to introducing patients to issues related to self-management, autonomy, and personal decision-making (Middour-Oxler et al., 2021)
- Goals of planned transition:
 - Improve quality of life
 - Maximize independence
 - Minimize interruption in care (Goralski et al., 2017)
- Healthcare transition program interventions (TPIs) associated with:
 - Increased knowledge
 - Increased patient satisfaction
 - Improved continuity of care (Baker et al, 2015)



Review of Literature Question

Do CF transition program interventions at a CF Care Center at an academic medical center increase transition readiness and patient satisfaction, and decrease transition-related anxiety in adolescents and young adults with CF?



Review of Literature

CINAHL: 95

WOS: 61

PubMed: 57

Cochrane Library:

17

Total 230 articles

175 non-duplicate

articles

Title and Abstract
Screening
89 articles

Full-text articles screened

16 articles

16 articles



Themes from the Literature

Transition Program Interventions

- O Education based (Baker et al., 2015); (Campbell et al., 2016); (Crowley et al., 2011); (Gravelle et al., 2015); (Okumura et al., 2014); (Schmidt et al., 2016)
- O Health care service delivery (Campbell et al. 2016); (Crowley et al, 2011); (Peeters et al., 2019); (Skov et al., 2018);)
- O Collaborative (Chaudry et al, 2013); (Crowley et al. 2011); (Okumura et al., 2014); (Peeters et al., 2019)
- Structured versus non-structured transition programs (Al-Yateem et al., 2012); (Coyne et al., 2017); (Chaudhry et al., 2013); (Middour-Oxler et al, 2021)

Barriers and challenges to transition

- O Patient barriers (Gorlaski et al., 2017); (Towns & Bell. 2011); (Tuchman et al., 2010)
- O Parent barriers (Gorlaski et al., 2017); (Towns & Bell, 2011)
- O Provider barriers (Baker et al. (2015); (Gorlaski et al., 2017); (Towns & Bell. 2011); (Tuchman et al., 2010)
- O System barriers (Tuchman et al., 2010); (Gorlaski et al., 2017)



Summary of Literature



Evidence supports the use of transition program interventions to improve transitional competencies



Minimal evidence to support the use of transition programs interventions in order to directly impact patient clinical outcomes



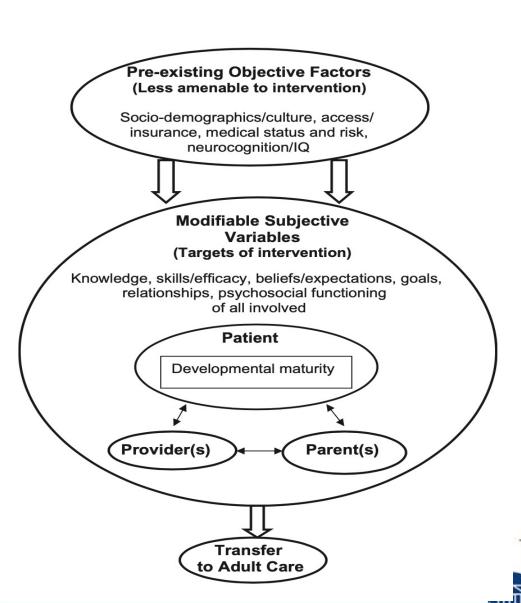
A planned, structured transition process from pediatric to adult care services for patients with CF is endorsed by:

- The American Academy of Pediatrics
- Healthy People 2020
- Cystic Fibrosis Foundation (CF Foundation, 2019; Office of Disease Prevention and Health Promotion [ODPHP], n.d.; White et al., 2018).



Theoretical Framework – SMART Model

Socioecological
Model for
Adolescents
and Young
Adults
Readiness for
Transition



Purpose

The purpose of the scholarly project was to complete a program evaluation of an Academic Medical Center's Cystic Fibrosis transition program.



Methods and Results



Implementation Framework

CDC's Framework for Program Evaluation in Public Health



- 1. Engage Stakeholders
- 2. Describe the Program
- 3. Focus Evaluation Design
- 4. Gather Credible Evidence
- 5. Justify Conclusions
- 6. Ensure Use and Share Lessons

Centers for Disease Control and Prevention. Framework for program evaluation in public health. MMWR. 1999;48 (No. RR-11).



Step 1: Engage the Stakeholders

- CF transition team members APRN, RN coordinator, social worker, psychologist, pharmacist, quality improvement coordinator, and parent and family representative.
 - Team meetings
 - Needs assessment
 - Modification of survey tool and data collection metrics
 - Development of Logic Model
 - Individual meetings with team members
- Patients with CF
 - Survey



Step 2: Describe the Program

- A CF Foundation-accredited CF Care Center at an academic medical center in the mid-eastern U.S.
- Comprised of two outpatient programs:
 - Pediatric CF program 130 patients
 - Adult CF program 136 patients
- Partners with the Learning and Leadership Collaborative (LLC) to use the Dartmouth Institute Microsystem Approach for quality improvement



Step 2: Describe the Program

- CF Transition Program Interventions
 - CF R.I.S.E program modules, readiness assessment
 - Ages and Stages questionnaires (ASQ)
 - o "Meet and Greet" visits with adult team
 - Quarterly joint meetings of adult and pediatric staff
 - Split-visits
- Formative process of building transition program
 - Standardization of processes
 - Implementation of more evidenced based transition program interventions



Step 2: Describe the Program Logic Model for Program Evaluation

INPUTS	ACTIVITIES	OUTPUTS □			OUTCOMES	
CF-R.I.S.E.¶ Dedicated	Literature Review on CF Transition Interventions	Patients participate in survey		Short-term (12 weeks)	Medium-term¶ (6 months)¤ Transition	Long-term¶ (12 months) Improved
Transition Team Members Cystic Fibrosis Foundation	CF Transition Team Meetings	Analysis of data is completed		plans for interventions based on recommendations	interventions implemented¶	transition readiness and patient satisfaction, decreased
Dartmouth Microsystem Approach	Needs Assessment by transition team	Learnings shared with CF Transition Team		¤	¤	transition anxiety¶
Working Group on Transition	Survey Tool Modification IRB Approval Communications with Working Group on Transition	Learnings Shared with Working Group on Transition		Increased awareness of potential "gaps"	Increased follow-up for patients who	Increase in patients seen by the adult CF
		Recommendations for program changes are made		in patient care during transition process	cancel appointments¶	center within 6 weeks of transfer
	Data Gathering (survey, EHR data collection)			Increased awareness of patients' health utilization	Improved tracking of changes in health utilization	-ta

Logic model template from: https://templatelab.com/logic-model/



Step 3: Focus the Evaluation Design

Emory University's Post- Transition CF Survey

- Transition readiness
- Transition related anxiety
- Satisfaction with the transition process
- Accuracy of new survey tool

Retrospective Chart Review

- Measured health stability before and after transfer
 - Continuity of Care
 - Health Care Utilization
 - Clinical Indicators



Step 4: Gather Credible Evidence

A convenience sample of 18 eligible patients was obtained at the CF Care Center for both the survey and chart review

Inclusion Criteria

- Patients who transitioned from the pediatric to adult CF clinic who received continuous care at the AMC
- Patients who transferred their care from pediatric to adult CF services between December 2017 and May 2021

Exclusion Criteria

- Patients who went through the transition process in the pediatric clinic but did not transfer to the adult clinic at the AMC
- Patients currently followed by adult clinic who went through the transition process at a different facility
- Patients lost to follow-up



Step 4: Gather Credible Evidence

Modified Emory University's Cystic Fibrosis
Post-Transition Survey

- Measures patient transition readiness, transition-related anxiety, and satisfaction
- Validated tool/rigorous content validity analysis
- 48 point survey multiple choice, matrix and open-ended questions
- Recruitment letter through an EHR communication portal with a link to participate in the survey via online survey tool
- 2 reminders sent through the EHR communication portal during 10-week data collection period

Step 4: Gather Credible Evidence

Retrospective Chart Review – "Health Stability" Measures obtained through the Electronic Health Record (EHR):

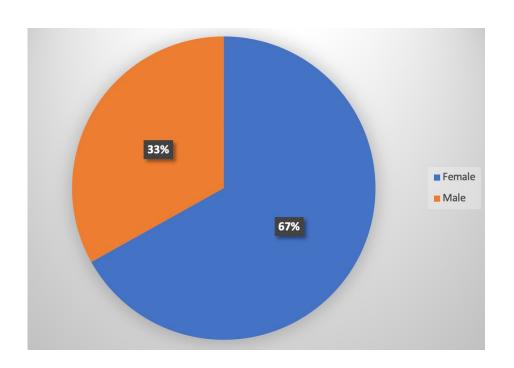
- Continuity of Care Measures:
 - Number of days between last pediatric and first adult center visit
 - Adherence to routine quarterly appointments
- Health Care Utilization Measures:
 - Non-routine office visits
 - Hospitalizations
 - Emergency Department Visits
- Clinical Indicators
 - Forced End Expiratory Volume (FEV₁) compared to calculated FEV₁ baseline

Step 4: Gather Credible Evidence-Data Management/Analysis

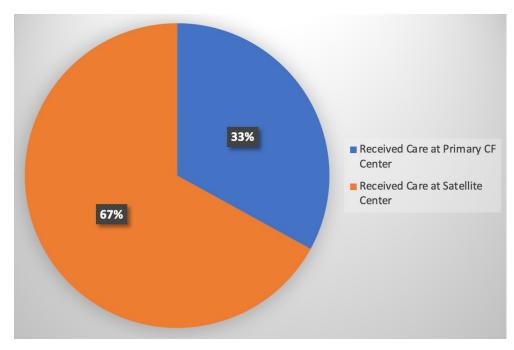
- Approval from the AMC's Institutional Review Board for Health Sciences Research (IRB-HSR)
- Protection of Anonymity
- Data Storage secure online survey platform and secure online platform
- Data collected was analyzed using SPSS, Version 28.
- Descriptive Statistics reported as mean, standard deviation, and percentages as appropriate.



Post –Transition Survey Results – Demographic Data



Participant Gender for Post-Transition CF Survey (n=3)



Site Participant Received Care for Post Transition CF Survey (n=3)

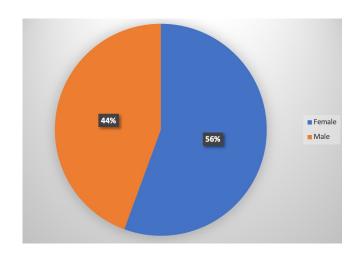


^{*}All respondents were between ages 22-24 years of age

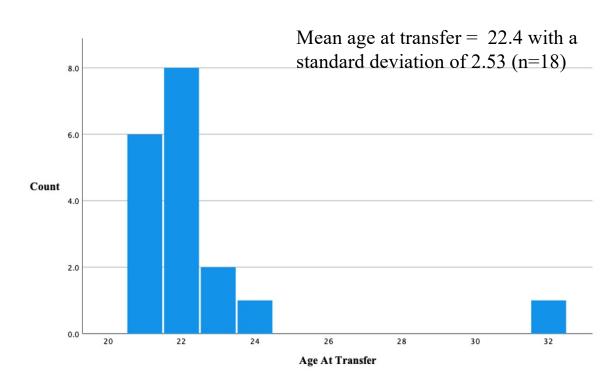
Post-Transition Survey Results

23		, 60 - 13 (9°)
	Category	Mean (SD)
	Overall Patient Satisfaction Score	4.52 (SD = 0.67)
X	"I am satisfied with the care I received in the Pediatric clinic"	5.0 (SD = 0.00)
	"Transition and transfer to the adult clinic met or exceeded	4.0 (SD = 1.00)
	my expectations"	
	Overall Score for Concerns Regarding Transition Process	2.94 (SD = 1.75)
A	"Leaving behind my Pediatric CF Team"	5.0 (SD = 0.00)
	"Just prior to transfer of my care to the adult program I was	4.0 (SD = 1.73)
	anxious"	
	"Having to meet new caregivers"	3.67 (SD = 2.31)
	"Being admitted to the Adult hospital"	3.67 (SD = 2.31)
	Overall score for Aspects that Made Patients feel	3.59 (SD = 1.77)
	Prepared and Confident During Transition Process	
X	"Meeting with the Pediatric CF Team without parents in the	5.0 (SD = 0.00)
	room"	
A	"Completing and discussing the transition assignments with	5.0 (SD = 0.00)
	the pediatric staff"	
	"Support with planning for insurance coverage,"	2.67 (SD = 2.08)
	"Support with planning for higher education and/or	2.67 (SD = 2.08)
	employment," with mean scores of 2.67 (SD = 2.08)	2.07 (02 2.00)
	chiployment, with mean scores of 2.07 (3D - 2.00)	
51		

Demographics of Patients in EHR Chart Review (n=18)

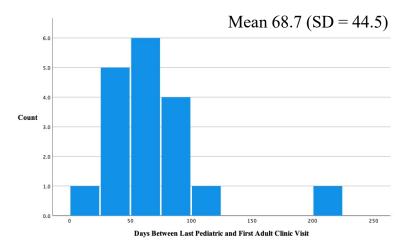


Patient Gender for Data Collection from Electronic Health Record for Program Evaluation of Cystic Fibrosis Transition Program (n=18)



Patient Age for Data Collection from Electronic Health Record for Program Evaluation of Cystic Fibrosis Transition Program (n=18)

Health Stability: Continuity of Care



Number of Days Between Last Pediatric and First Adult Center Visit in Cystic Fibrosis Center (n=18)

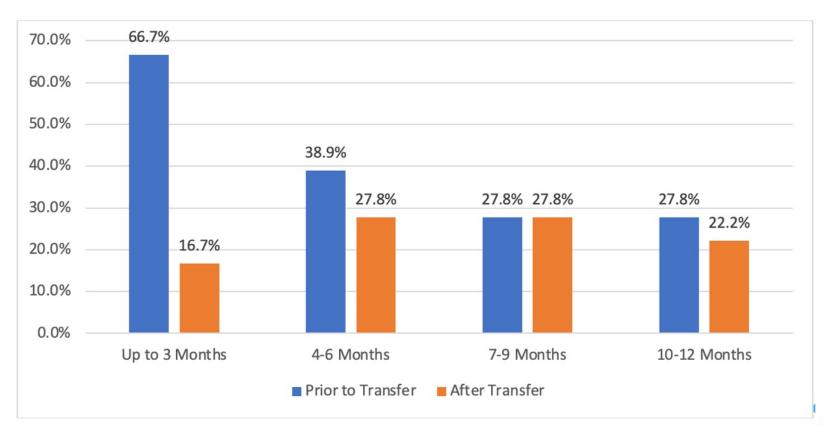


Percentage of Adherence to Quarterly Visits Prior to and After Transition from Pediatric to Adult Cystic Fibrosis Health Care Services for (n=18)



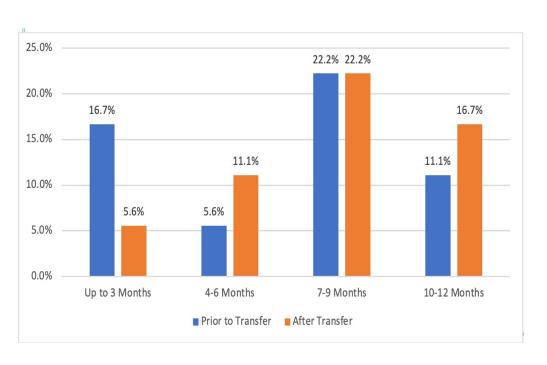
Health Stability: Healthcare Utilization

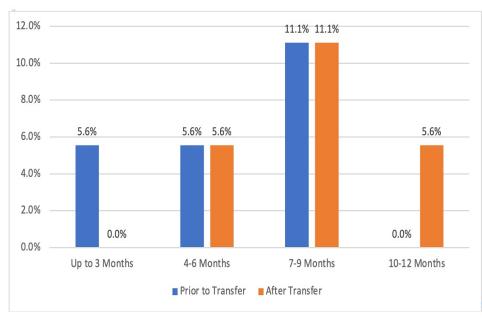
All Non-Routine and Other Office Visits Prior to and After Transition from Pediatric to Adult Cystic Fibrosis Health Care Services (N=18)





Health Stability: Healthcare Utilization

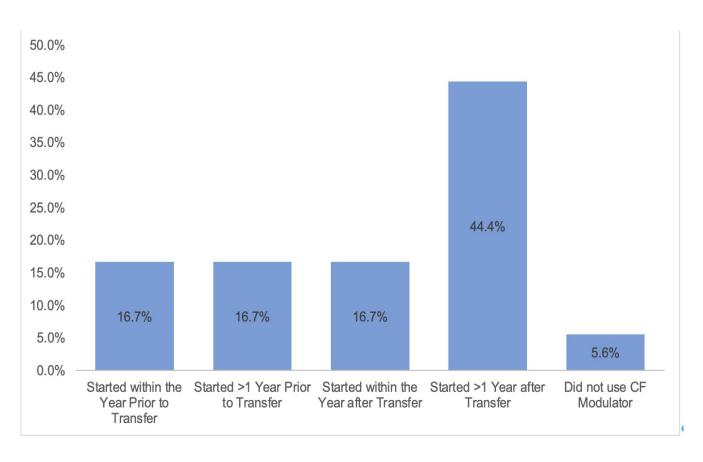




Hospitalizations Prior to and After Transition from Pediatric to Adult Cystic Fibrosis Health Care Services (n=18) Emergency Department Visits Prior to and After Transition from Pediatric to Adult Cystic Fibrosis Health Care Services (n=18)



Health Stability: Clinical Indicators and CF Modulator Timing



Forced End Expiratory Volume/calculated baseline FEV₁

Prior to transfer:

FEV₁: 2.98/3.12 L

After Transfer

FEV₁: 3.09/3.12 L

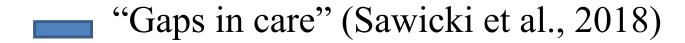
Timing of Introduction of Cystic Fibrosis Modulator in Relation to Transition (n=18)

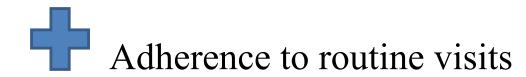


Step 5: Justify Conclusions

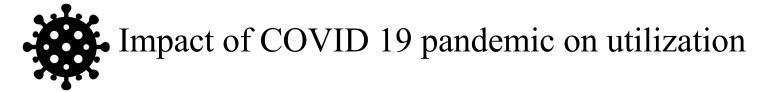


Health stability











Step 5: Justify Conclusions

- Low response rate for survey
- Need for more effective evaluation tool
- All Participants had a high degree of transition readiness at the time of their transfer of care
- Patient satisfaction with the transition was high, particularly with the care they received in the pediatric clinic
- Bond with pediatric team



Step 5: Justify Conclusions

Recommendations

- Shorter patient survey, particular to AMC
- Administer survey in person, perform "exit interview" with open ended questions in the year after transfer
- Continue to standardize processes and implement evidence-based TPIs
- Re-evaluate health stability measures in 3 years time to determine impact of evolving program.



Strengths & Limitations

- Strengths
 - CDC Program Evaluation Framework
 - Enthusiasm of stakeholders
- Limitations
 - CF Modulators/Timing of Transition
 - Access to patients
 - Impact of COVID 19 Pandemic
 - Variability in exposure to transitions
 - Dependent on patient recall



Step 6: Ensure Use and Share Lessons

- Presentation to CF transition team
- Presentation to Pediatric Transition Working Group at AMC
- Submission to academic LIBRA repository
- Manuscript submission to the Journal of Pediatric Health Care



Nursing Practice Implications

- Adds to the nursing body of knowledge on the value of transition program interventions for patients with CF
- Findings can be generalized to other patients with chronic medical conditions who are transitioning to adult care
- Nurses are at the forefront of the transition process, taking responsibility for the provision of health care as well as the coordination of services in many CF Centers.
- Nurses are in a prime position to advocate for the delivery of transition services that are most beneficial and relevant for patients in order to reduce gaps in care and improve patient outcomes

Thank you for your attention. Questions?



References

- Cystic Fibrosis Foundation. (2019). Patient Registry 2019 Annual Data Report. Retrieved from:

 https://www.cff.org/Research/Researcher-Resources/Patient-Registry/2019-Patient-Registry-Annual-Data-Report.pdf
- Baker, A. M., Riekert, K. A., Sawicki, G. S., & Eakin, M. N. (2015b). Cf rise: Implementing a clinic-based transition program. *Pediatric Allergy, Immunology & Pulmonology*, 28(4), 250–254. https://doi.org/10.1089/ped.2015.0594
- Campbell, F., Biggs, K., Aldiss, S. K., O'Neill, P. M., Clowes, M., McDonagh, J., While, A., & Gibson, F. (2016).

 Transition of care for adolescents from paediatric services to adult health services. *Cochrane Database of Systematic Reviews*, *4*, CD009794. https://doi.org/10.1002/14651858.CD009794.pub2
- Centers for Disease Control and Prevention. (1999). Framework for program evaluation in public health. *U.S.*Department of Health and Human Services. Morbidity and Mortality Weekly Report, 48(No.RR-11): 1-40.

 Information retrieved June 6, 2020: https://www.cdc.gov/mmwr/PDF/rr/rr4811.pdf.
- Coyne, I., Sheehan, A. M., Heery, E., & While, A. E. (2017). Improving transition to adult healthcare for young people with cystic fibrosis: A systematic review. *Journal of Child Health Care*, 21(3), 312–330. https://doi.org/10.1177/1367493517712479
- Goralski, J. L., Nasr, S. Z., & Uluer, A. (2017). Overcoming barriers to a successful transition from pediatric to adult care. *Pediatric Pulmonology*, *52*(S48), S52–S60. https://doi.org/10.1002/ppul.23778

References

- Middour-Oxler, B., Bergman, S., Blair, S., Pendley, S., Stecenko, A., & Hunt, W. R. (2021). Formal vs. informal transition in adolescents with cystic fibrosis: A retrospective comparison of outcomes. *Journal of Pediatric Nursing*. https://doi.org/10.1016/j.pedn.2021.06.004
- Office of Disease Prevention and Health Promotion. (n.d.). *Healthy People 2020*. U.S. Department of Health and Human Services. Retrieved on August 1, 2021 from:

 https://www.healthypeople.gov/2020/topicsobjectives/objective/dh-5
- Schwartz, L. A., Tuchman, L. K., Hobbie, W. L., & Ginsberg, J. P. (2011). A social-ecological model of readiness for transition to adult-oriented care for adolescents and young adults with chronic health conditions. *Child Care Health and Development*, 37(6), 883–895. https://doi.org/10.1111/j.1365-2214.2011.01282.x
- West, N. E., & Mogayzel, P. J. (2016). Transitions in health care: What can we learn from our experience with cystic fibrosis. *Pediatric Clinics of North America*, *63*(5), 887–897. https://doi.org/10.1016/j.pcl.2016.06.010
- White, P. H., Cooley, W. C., Group, T. C. R. A., Pediatrics, A. A. O., Physicians, A. A. of F., & Physicians, A. C. O. (2018). Supporting the Health Care Transition From Adolescence to Adulthood in the Medical Home. *Pediatrics*, 142(5). https://doi.org/10.1542/peds.2018-2587



University of Virginia's Cystic Fibrosis Clinic Post-Transition Survey

Questionnaire Instructions: Please mark the best answer to each of the following questions by placing an X in the box which best describes your response. You may elect not to respond to any questions which you do not feel comfortable answering.

1. Age: 21 and under 22-24 2. Gender: Male Female 3. Year of Transition (last pediatric appointment): 4. Which CF pediatric clinic did you primarily attend?	☐ Other ☐ 2018 ☐ Charlottesv	□ 2019 ille	□ Roar	□ 2020 noke	□ Wyth	□ 2021 deville		
Thinking back to before you transitioned to the adult clin	ic, how concern							
		Very S	omewhat	Neutral	Minimal	Not at all	N/A	
1. Meeting with my CF Team without my parents in the	exam room.							
2. Leaving behind my Pediatric CF Team.								
Having to meet new caregivers.								
 Your perception of how care in the Adult CF clinic mig different. 	ght be							
5. Adult caregivers not being as caring or friendly.								
6. Adult clinic running on time.								
7. Being exposed to infection in the Adult clinic.								
8. Location of the Adult Clinic.								
9. Being admitted to the Adult hospital.								
10. Making my own clinic appointments.								
11. Just prior to transfer of my care to the Adult program I anxious:	was							
Meeting with the Pediatric CF Team without your parents in the room.	Very	Somewhat		ıtral	Minimal	Not at all	N/A	
Completing and discussing the transition assignments with the pediatric staff.								
Receiving written materials about the adult clinic and staff.]					
4. Support with planning for insurance coverage.								
Support with planning for higher education and/or employment.								
Education to help me be able to care for my CF independently.								
7. Prior to having your first clinic visit in the UVA Adult CF clinic, did you meet the Adult CF team at one of your pediatric clinic visits?	□Yes – Answer question number 8a □No – Answer question number 8b		□Not sure – Answer question number 8b					
8a. Meeting the Adult CF team prior to my transfer to the Adult CF clinic greatly reduced my anxiety about transitioning care to the adult program.	□Strongly Agree	□Agree	Age	either ee or igree	□Disagree	□Strongly	□Strongly Disagree	
8b. If you could have met the adult CF team prior to your transition to the Adult CF program, would your anxiety level have been significantly reduced.	□Absolutely	□Probably	□Not	Sure	□Probably Not	□Absolu	tely Not	



The following questions are meant to gauge your satisfaction with the transition process:							
	Strongly Agree	Agree	Neither Agee <u>or</u> Disagree	Disagree	Strongly Disagree	Did Not Occur	
 The time spent in my Pediatric CF clinic discussing transition to the Adult CF Clinic prepared me well for my first Adult clinic visit. 							
2. I feel I was provided enough information about transitioning to the Adult clinic in the year leading up to the transfer of care.							
I was given the opportunity to ask questions about transitioning to the Adult CF clinic.							
4. I am satisfied with the care I received in the Pediatric clinic.							
5. I was given the chance to discuss when during the year transfer to the Adult services would occur.							
I knew who/where to call for CF related concerns between my last pediatric appointment and my first adult appointment.							
	Strongly Agree	Agree	Neither Agee or Disagree	Disagree	Strongly Disagree	Did Not Occur	
7. I am satisfied with the care I have received in the Adult clinic.							
Transition and transfer to the adult clinic met or exceeded my expectations.							
I feel like my <u>Adult</u> team was well-informed about my medical history from my Pediatric team.							
 I feel I had control over how much my parents/guardians were involved in the transition process. 							
 The age and timing in which I transition into the Adult program was just right for me. 							
12. <u>In regards to my</u> transition time, if I could do it over again I would have:	□Stayed in r clinic l		☐Transitioned to the Adult clinic sooner if I could have. ☐No change. M transition timing to Adult CF clinic wa right.		timing to the clinic was just		
13. Do you think the transition program made changing from Pediatric to Adult care easier, more difficult, or no difference?	☐Made the change easier	☐ Made the change more	☐I was not affected by the program	remember going through a transit		□I did not go through a transition program.	



The following questions are meant to gauge your readiness at the time to transition								
At the time of my transfer to the Adult CF program, I completely understood my cystic fibrosis and was completely independent in my own medical care (including how to take my medications, what cystic fibrosis is and does to my body, different kinds of airway clearance, insurance,								
how to schedule appointments, how to re-order medications).								
a. Yes								
b. No								
c. Not sure								
2. If there were aspects of your medical care that you did not feel completely independent about at the time of your transfer to the Adult CF center								
what were they? (Please circle all that apply)								
a. The medications that I took and what they were for								
b. What cystic fibrosis is and does to my <u>body</u>								
c. Different kinds of airway clearance								
d. My insurance								
e. How to schedule appointments								
f. How to re-order my medications								
g. How to get in touch with the CF center h. Other:								
h. Other:								
 Do you know where to get information regarding CF treatments and research at your center? a. Yes b. No c. Not sure 								
overall satisfaction with the transition from pediatric to adult CF care here at University of Virginia:								
	Dissatisfied							
What was the most difficult part of your transition to the Adult clinic?								
What did you find most helpful when you transitioned to the Adult clinic?								
Were there any CF education topics that were not covered adequately in the Pediatric clinic that you would have liked more informat you transitioned to the Adult clinic?	ion on before							
Is there anything you would suggest we do differently to improve transition?								



UVA Cystic Fibrosis Center Transition Survey

This survey asks about the transition process from the pediatric cystic fibrosis care to adult cystic fibrosis care. Transition is the purposeful planned movement from child-centered to adult-centered health care systems. Please answer the questions below to the best of your recollection.

1.	 Are you aware of a transition process from pediatric care to adult care at the University of Virginia Health System? 								
	a. Yes	b. No	c. Unsure						
2.	If you have transitione	d or are transi	tioning, is/was the	timing of the of th	ne transition process a	ppropriate?			
	a. Yes	b. No (too ea	arly or too late)	c. Not applicable	2				
3.	What do you think is the	he ideal age to	initiate the transit	ion process from p	pediatric to adult care?	•			
	a. 14	b. 15	c. 16		e. 18 f. 19				
	g. 20	h. 21	į. 22	j. Other					
4.	If you have transitione	d or are transi	itioning, is/was the	length of the tran	sition process:				
	a. too long	b. ap	opropriate	c. too short					
5.	Did the transition proc	ess prepare vo	ou (or is it preparin	g vou) to deal with	n the following issues:				
	a. Self-care	, , , ,	Yes	No	Unsure				
	b. Insurance issue	es	Yes	No	Unsure				
	c. Being indepen	dent	Yes	No	Unsure				
	d. Relationships/	sexuality	Yes	No	Unsure				



UVA Cystic Fibrosis Center Transition Survey

6.	Is or was the transition process smooth and did you feel prepared a. Yes b. No	to move fro	m pedia	atric care to adult	care?		
7.	Has the transition process helped with:						
	a. Making an appointment with the adult clinic?	Υ	N	Unsure			
	b. Finding the location of the adult clinic?	Υ	N	Unsure			
	c. Independence to talk with CF health care providers?	Υ	N	Unsure			
	d. Ability to care for CF independently?	Υ	N	Unsure			
e. Learning differences between pediatric and adult care approaches?							
		Υ	N	Unsure			
	f. Following CF medications/treatment schedule?	Υ	Ν	Unsure			
8.	An ideal time for transfer of care from the pediatric care to adult of a. End of high school b. During college (undergraduate) c. After college graduation	care is:					

9. If you have been transitioned, did you wish you had transferred care earlier?

10. What is your age? _____

a. Yes

b. No c. Not applicable

