Southern Illinois University Edwardsville School of Pharmacy

U-AID: mobile device inhaler teaching to improve inhaler technique

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INTRODUCTION

- Inhalers are common
- Studies have shown variable inhaler competency, even among pharmacy students
- A mobile app could be a beneficial pocket resource

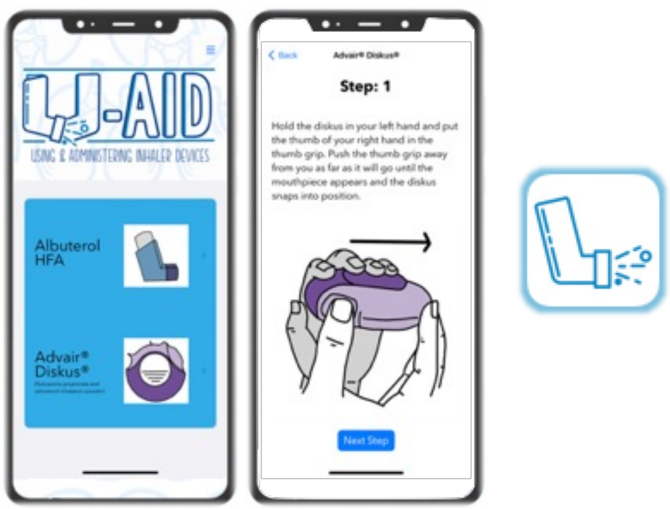
OBJECTIVE

- Determine if teaching inhaler technique using a mobile application affects inhaler technique

METHODS

- Non-RCT, pre and post-survey design
- > 18 yo & < 90 yo in Collinsville & Edwardsville
- Mobile application developed for iOS platform
- HFA and diskus inhalers only

- **Intervention**: participants were alternated and given one of the inhalers with manufacturer instructions and then given the opposite inhaler with the app



RESULTS

- 70% female
- Median age was 44 (20-75)
- Technique was improved with use of the app
- On average, using the app took longer for the HFA inhaler

Table 1: Demographics

	All (*n* = 10)	Control group (*n* = 10)		Intervention group (*n* = 10)	
		HFA	Diskus	HFA	Diskus
Sex					
Female	**70%**	80%	60%	60%	80%
Male	**30%**	20%	40%	40%	20%
Age, median	**44**	36.4	51.6	51.6	36.4
Student Status	**20%**	40%	0%	0%	40%
Years of College completed	**3.4**	3.5	3.3	3.3	3.5
Phone Type					
iPhone	**70%**	60%	80%	80%	60%
Android	**30%**	40%	20%	20%	40%
Daily Phone Use Average (Hours)	**3h 51m**	4h 42m	3h 0m	3h 0m	4h 42m

Table 2: Survey

	All (*n* = 10)
Inhaler Use	
Previous Inhaler Use	40%
Inhaler Type	
HFA	30%
Diskus	10%
Other	0%
Confidence level (avg)	
Pre-Study	5.7
Post-Study	8.3

Table 4: App Quality and Subjective Rating

	Score
App quality (mean score)	8.8
Information	9.4
Aesthetics	8.6
Functionality	8.9
Engagement	8.1

Table 3: Average Score by Step

Device	Control group	Mobile app group
HFA		
Step 1 (0-2 pts)	1.6	1.8
Step 2 (0-2)	1.6	1.6
Step 3 (0-1)	1.2	1.2
Step 4 (0-2)	2	2
Step 5 (0-2)	2	2
Step 6A (0-2)	1.6	1.4
Step 6B (0-2)	1.6	1.8
Step 7 (0-2)	2	2
Step 8 (0-2)	1.2	1.4
Step 9 (0-2)	1.6	1.6
Total Score out of 19	**16.4**	**16.8**
Average time	**01:15**	**02:00**
Diskus		
Step 1A (0-2 pts)	1.4	1.8
Step 1B (0-2)	1.8	2
Step 2A (0-2)	1.2	1.4
Step 2B (0-2)	2	2
Step 3A (0-2)	1.8	1.8
Step 3B (0-2)	1.4	2
Step 4A (0-1)	1	1
Step 4B (0-2)	1.8	1.8
Step 4C (0-2)	2	2
Step 4D (0-2)	0.6	1.4
Step 4E (0-2)	0.6	1.6
Step 5A (0-2)	2	2
Step 5B (0-2)	0.8	1.2
Total Score out of 25	**18.4**	**22**
Average time	**01:34**	**01:13**
Percentage of participants with incorrect order of steps		
HFA	40%	60%
Diskus	40%	20%

DISCUSSION

- Most common error for both inhalers was 'hold your breath' after inhaling the medication
- Some of the participants did not remove the HFA inhaler cap
- Overall, more participants had higher technique scores in the app group than the control group
- Participants overall found the app informative, aesthetically pleasing, functional and engaging
- Further studies, especially by age group, are needed to assess the benefit of mobile device education

CONCLUSION

- Inhaler technique improved with use of a mobile application
- App improvement of images, interface, and instructions may improve use further
- More research is needed to assess the benefit of mobile devices in inhaler adherence

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