Medication Delivery and Use in Home-Based Hospital Care

(Medication Delivery)

Date: 10/30/2026 - 11/06/2026

Client: Jennifer Woodard
Advisor: Randy Bartels
Team:

Aariel Moore - Team Leader, ajmoore4@wisc.edu
Sascha Jameson - BWIG, sjjameson@wisc.edu
Alayna Allsop - BSAC, alallsop@wisc.edu
Caiden Krzmarzick - Communicator, ckrzmarzick@wisc.edu
Sarvesh Anandhaganesen - Co- BPAG, anandhaganes@wisc.edu
Sila Olcay - Co- BPAG, solcay@wisc.edu

Problem statement

Older adults and others with reduced grip strength, dexterity, or vision frequently cannot open blister-packaged medication, particularly peel-back foils. Existing aids either require substantial force, fail on peel-away packaging, or are too large, costly, or hazardous for personal use. As a result, patients drop pills, use sharp tools, or miss doses. A portable, low-force, low-cost tool is needed that safely opens both peel-back and push-through blister packaging without modifying the package or exposing sharp edges.

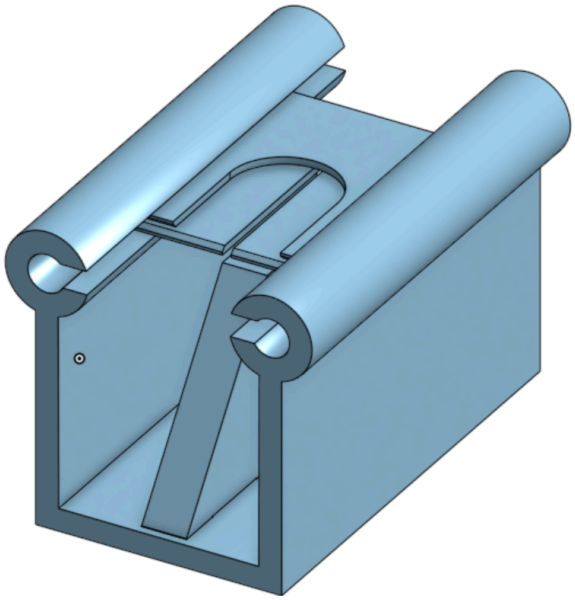
Brief status update

The team has met outside of class to 3D print a prototype. We ended up choosing an alternative design to print as our original design did not fit our problem statement. Future client meetings to discuss progress have been scheduled to discuss this design. Future testing of this new prototype has been planned. The current prototype is working, but has dimension and stability issues. We will attempt to fix these issues next week before the advisor meeting and have a complete design before the next client meeting.

Difficulties / advice requests

We are having difficulty with finding a way to successfully push the pills through the plastic out the other end. Through some testing we realized that the last part of prescribed pills is a little more difficult to work with than over the counter medicine. The goal now is to make a clean slice through the backing. We will attempt to take the pill out of the package using a secondary tool. Making this a two step process instead of one.

Current design



Materials and expenses

Item	Description	Manufac-turer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Category 1: Lever Design										
PLA	Lever Design							$0.02	$1.94	
PLA	Rods and Hex Nuts								$0.19	
Category 2: Push Cut Pop										
PLA	Top Part								$2.74	
PLA	Bottom Part								$2.01	
PLA	Push, Cut, Pop Design							$0.02	$4.14	
Category 3: Slider and Blade Support Design										
PLA	Prototype Assembly								$1.80	
PLA	Slider and Stand								$0.39	
								TOTAL:	$13.21	

Goals

Major team goals for the next week

1. Continue Testing

2. Do blade research
3. Continue advancing design

Next week's individual goals

- Aariel Moore
  - Research on suction/silicon for safety of design
  - Meet about dimension and fix any gray areas
  - Begin testing protocols
- Alayna Allsop
  - Print a complete design for testing with solidified dimensions
  - Develop testing protocols and start collecting data
- Caiden Krzmarzick
  - Coordinate meetings outside of class to continue testing design
  - Work with team members to iterate on final design
  - Problem solve and design safety precautions for open blade
- Sascha Jameson
  - Research more on blades
  - Test prototype
  - Meet outside of class
- Sila Olcay
  - Research blades & purchase some for our prototype
  - Test prototype
  - Talk more about dimensions and fix some components
- Sarvesh Anandhaganesen
  - Research and order blades
  - Keep testing device iterations
  - Develop final prototype

Timeline

Task	Sept				Oct					Nov				Dec	
	4	10	17	24	1	8	15	22	29	5	12	19	26	3	10
Project R&D															
Empathize	X	X	X	X	X	X	X	X	X	X					
Background…		X	X				X		X	X					
Prototyping						X	X	X	X	X					
Testings								X		X					
Deliverables															
Progress Reports	X	X	X	X	X	X	X	X	X	X					
Prelim presentation					X										
Final Poster															
Meetings															
Client				X	X			X							

BME Design: 200, 300, 301, 400 and 402

Advisor			X	X	X	X	X								
Website															
Update	X	X	X	X	X	X	X	X	X	X					

Filled boxes = projected timeline
X = task was worked on or completed

Detailed accomplishment

Previous week's goals and accomplishments

- Aariel Moore
  - Tested revised prototype
  - Completed show and tell and took advice into account
- Alayna Allsop
  - 3D printed new design with blade as proof of concept
  - Modified design in CAD
- Caiden Krzmarzick
  - Met outside of class to test and iterate new design
  - Sketched and uploaded new design to notebook
  - Attended show and tell
- Sascha Jameson
  - Researched different types of blades
  - Suggested design modifications based on research
  - Adjusted LabArchives notebook to reflect current progress
- Sila Olcay
  - Completed show and tell
  - Tested revised prototype
- Sarvesh Anandhaganesen
  - Completed show and tell
  - Worked with upgraded design and made improvements for next

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Aariel Moore	11/5/2026	Research, Testing, Outside Meeting	2	2	32
Alayna Allsop	11/5/2026	CAD development	4	4	32
Caiden Krzmarzick	11/5/2026	Design iteration, Outside meeting	4	4	30
Sarvesh Anandhagansen	11/5/2026	Testing, Team meeting	2	2	29
Sila Olcay	11/5/2026	Testing, Research	2	2	31
Sascha Jameson	11/5/2026	Blade research, LabArchives work	4	4	28