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PATIENT OPINION OF THREE METHODS OF RECORDING VOIDING HABITS AT HOME

Hypothesis / aims of study

Manual frequency volume charts (MFVCs) and uroflowmetry are important tools for investigation of lower urinary tract symptoms (LUTS) [1,2] in order to document an individual's everyday urinary habits and assess flow rate. Recent initiatives to move healthcare closer to the home have led to the development of devices that allow flow rates, in addition to voided volume, to be obtained at home as a potential alternative to clinic measurements. These include simple funnel devices which, like MFVCs, require the patient to keep a written record, and more sophisticated electronic devices which record continuous volume and flow rate data. This study aims to:

• Compare patient opinion of three methods of recording voiding habits at home: (1) MFVC, (2) Uflow Meter® (simple funnel device) with volume chart and (3) Portable low cost electronic flowmeter developed in our department; PeePod (Figure 1).

• Compare the number of voids recorded using each method.

Study design, materials and methods

Participants used each of the three recording methods for three days. For each, on a questionnaire, they scored *burden on everyday life* and for the two devices *physical ease of use* on ordinal scales. Justifications and comments were recorded as free text. Participants were also asked on the questionnaire which of the three methods they would choose to repeat if required.

Results

11 male patients with LUTS recruited from our urine flow clinic and eight male volunteers without urinary complaints completed the study (mean [range] age = 63 [45-80] years).

There was no difference in the total burden scores for the three methods, which were all low (p = 0.9, Friedman test; Table 1A). Four participants scored the Uflow as *Quite difficult* to use, but the difference between the overall physical ease of use scores for the PeePod and Uflow was not significant (p = 0.09, Wilcoxon signed-rank test; Table 1B). Eight participants commented that using the Uflow Meter® was physically awkward: *"Bit of a balancing act"*, or expressed difficulty in gauging the level their urine reached: *"Judging depth of urine in the stem by looking down from the top means it can only be a guess"*, *"Bubbles – makes it hard to read the flow"*, *"You don't get a sideways view to see the exact spot"*. Three participants commented that the PeePod's sensor and electronics were heavy: *"You need to take care to ensure you don't drop it as this could damage sink/toilet/floor or injure your foot."*

When asked which method they would choose to repeat and why, six participants chose the MFVC: *"Easiest option"*, seven chose the PeePod: *"Automatically calculates for you"*, three chose the Uflow Meter®: *"[I] understood what I was doing and how it worked"*, three expressed no preference.

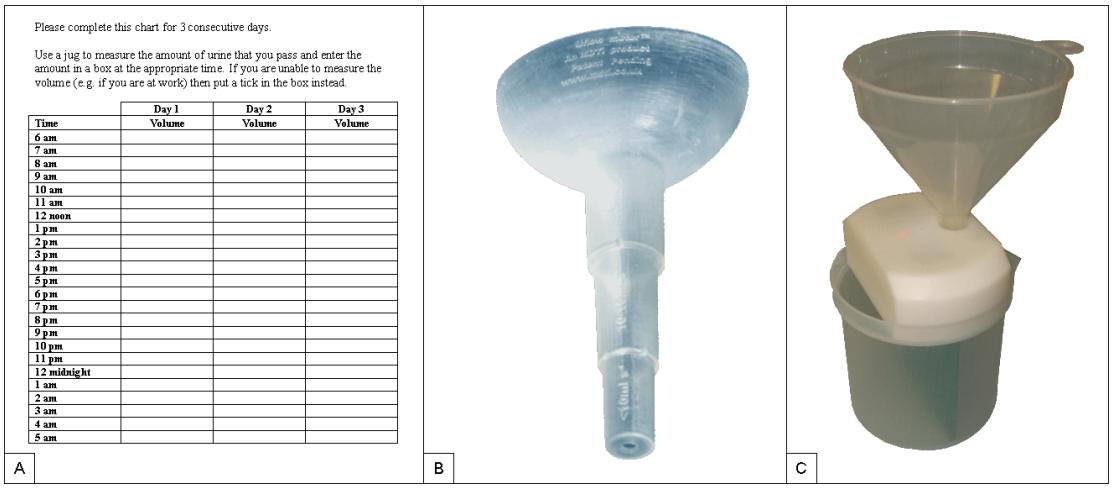
The average numbers of voids recorded per day using each method were: MFVC = 5.8, Uflow Meter® = 5.5, PeePod = 5.0, the only significant difference being between the MFVC and PeePod (p = 0.01, paired t-test).

Interpretation of results

None of the participants found any of the home recording methods particularly burdensome, despite the fact that the two devices necessitate additional handling and rinsing. This may reflect an appreciation that these devices collect both volume data and flow rate data and therefore extra effort is justified. Electronic devices hold the advantage for clinicians in that they records continuous flow data, as opposed to the user documented categorical data, but an average of one void per three day period may be omitted compared to a MFVC.

Concluding message

Both flow and volume voiding data can be measured at home using an appropriate device with no additional burden to the patient compared to conventional MFVCs. Electronic devices obtain digital flow and volume data and may be easier to handle than those that require self-recording by the patient.



Please complete this chart for 3 consecutive days.

Use a jug to measure the amount of urine that you pass and enter the amount in a box at the appropriate time. If you are unable to measure the volume (e.g. if you are at work) then put a tick in the box instead.

Time	Day 1 Volume	Day 2 Volume	Day 3 Volume
6 am			
7 am			
8 am			
9 am			
10 am			
11 am			
12 noon			
1 pm			
2 pm			
3 pm			
4 pm			
5 pm			
6 pm			
7 pm			
8 pm			
9 pm			
10 pm			
11 pm			
12 midnight			
1 am			
2 am			
3 am			
4 am			
5 am			

A B C

Figure 1 – A) Manual frequency volume chart, B) Uflow Meter®, C) PeePod.

		PeePod	Uflow Meter®	MFVC
A) Please rate the burden on your everyday life of this method	Not at all burdensome	9	10	9
	A bit of a burden	10	9	8
	Quite a burden	0	0	1
	Very burdensome	0	0	0
B) Physically, how easy was the device to handle and use?	Very easy	8	5	
	Quite easy	8	7	
	Neither easy nor difficult	3	3	
	Quite difficult	0	4	
	Very difficult	0	0	

Table 1 – Summary of A) burden on everyday life *and B)* physical ease of use *ratings.*

References
1. Scand J Urol Nephrol, 1996. 30(179): p. 47-53
2. Eur Urol, 2001. 40(3): p. 256-64

Specify source of funding or grant	**The Wellcome Trust**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Newcastle & North Tyneside 1**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**