

Remote urine dipstick analysis for faster treatment of urinary tract infections using smartphone technology

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Urinary tract infections are the most common infection affecting patients with a kidney transplant. Prompt treatment is essential to prevent complications such as sepsis and acute kidney injury.

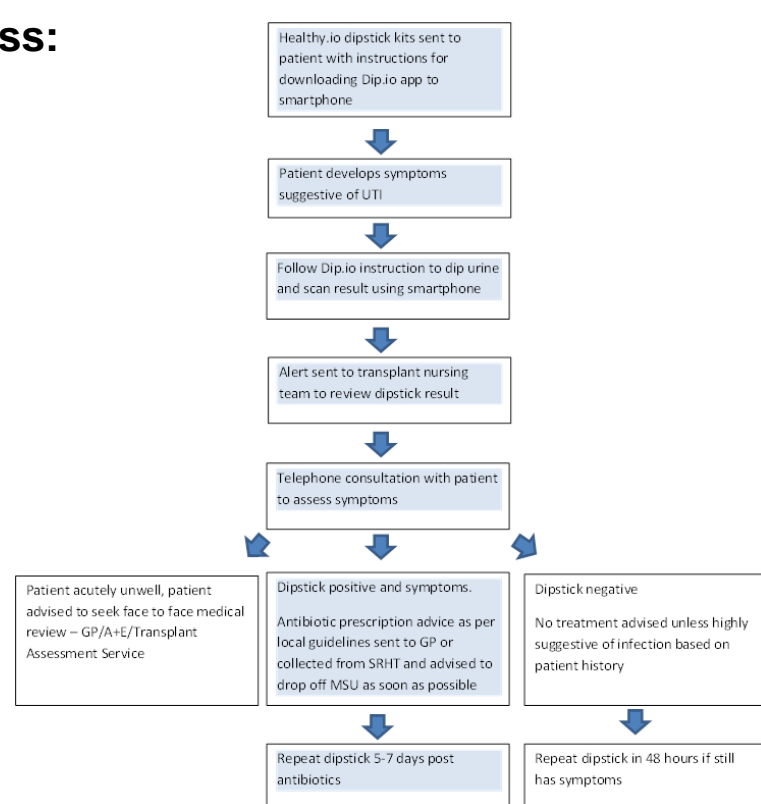
The kidney transplant team care for almost 700 patients spread across a wide geographical area. Swift identification and treatment of urinary tract infections is challenging with current practice; patients are directed to their general practitioner with wide variations in investigations performed, time to treatment and antibiotic type and course length.

The aim of this study is to establish whether self-testing urine samples at home using Healthy.io urine dipstick kits will correctly identify urinary tract infections and reduce the time symptomatic patients receive appropriate antibiotic treatment.

Patient selection:

Patient with more than 2 UTIs per year and had access to a smartphone were invited to take part.

Process:



Results:

- 24 patients were invited to take part in the study.
- 14/24 patients used the Dip.io dipstick at home over 6 months.
- The Dip.io dipsticks have been used 36 times in in 6 months.
- Individual patients have used Dip.io kits between 1 and 7 occasions.
- Patients were deemed highly likely to have a UTI if leucocytes or nitrite positive and typical symptoms.
- The dipstick was deemed equivocal if typical symptoms of infection and only a trace of leucocytes/nitrite negative

Results contd:

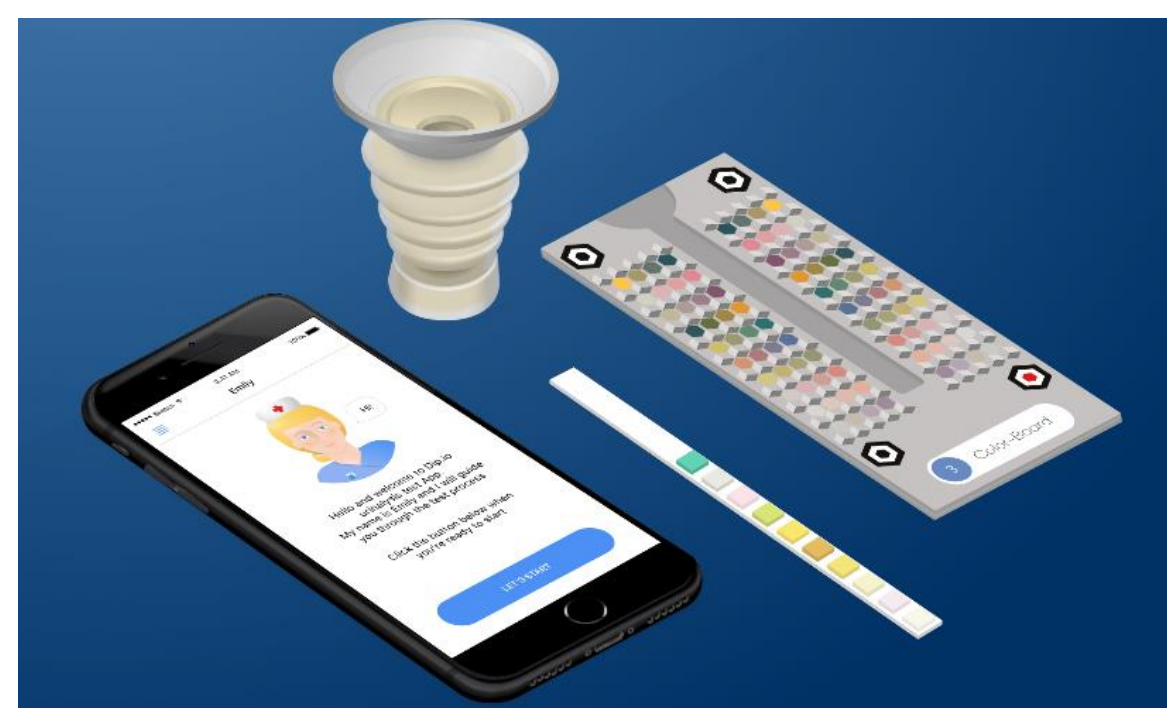
		MSU			
		Positive	Negative	Sterile Pyuria	Not Available
Dip.io dipstick	Positive	7	0	2	5
	Equivocal	4	1	0	1
	Negative	1			15*

*patients were not advised to perform MSU unless strong clinical suspicion

- There was only one admission for UTI in this patient group in a 6 month period.
- In view of the enhanced surveillance and rapid treatment one patient stopped taking long term antibiotic prophylaxis.
- 13/19 patients received antibiotics the same day as reporting symptoms.
- Initial feedback on the Dip.io system has been extremely positive with a score of 88 being reported by the Net Promoter tool analysing client experience and loyalty – in an environment where over 70 is considered world-class
- Patients reported feeling empowered and were subjectively more engaged with their management.

Summary:

- The Dip.io urine dipstick kit can accurately detect UTI's in the high-risk kidney transplant population.
- We are able to cut down the time to antibiotic treatment for UTI dramatically in this patient group. We are considering rescue packs of antibiotics at home to reduce the time to treatment further.
- Patients report feeling empowered to seek help for management of their UTI's.
- Nursing time spent managing UTI's has reduced considerably since using this direct testing



Dip.io urine dipstick kit and app