Dear Editor,

Please find enclosed the edited manuscript in Word format (**ESPS Manuscript NO: 11982**).

Title: **Current status and future expectations**

Author: Wright A E, Rukin N J, Somani B K.

Name of Journal: *World Journal of Gastroenterology*

ESPS Manuscript NO: 11982

The manuscript has been improved according to the suggestions of reviewers:
1 Format has been updated

2 Revision has been made according to the suggestions of the reviewer as detailed below

3 References and typesetting were corrected

Thank you again for publishing our manuscript in the *World Journal of Gastroenterology.*

Sincerely yours,

Bhaskar K Somani
Consultant Urological Surgeon (Stone Lead) and Honorary Senior Lecturer
Department of Urology
University Hospital Southampton NHS Trust
SO16 6YD,
Southampton, UK.

Reviewer 1

Dear authors, This is an interesting manuscript which contains history of URS. There is a need of some revisions in the manuscript
1. The manuscript has an interesting subject about the advancement in ureteroscopic instruments and techniques. There are some mistakes in gramer of the manuscript. Some words are written adjacent. These words were painted red and underlined.
Answer: The authors thank the reviewer for their comments and these corrections have now been made.

3. The title should contain not only "current status" also future expectations.
Answer: This has now been done.

4. The abstract gives a clear delineation of the research. The authors can change the key words according to the large spectrum of manuscript. (for example; ureteroscopy, techniques,ureteral stones,treatment,advances…..
Answer: These have now been done and reads – 'Ureteroscopy; techniques; ureteral stones; calculi; treatment; advances'

5. The authors explained technological advances in ureteroscopy in part 3.But more discussion is needed. The authors mentioned first URS in 1912 and then modern ureteroscope in 1980. But what about between 1912-1980 ? Are there any other advances in technology between this period ? What about of pneumatic litotripsy before laser ? Are there any differences in success and complications of these methods ?
Answer: These have now been done and 2 new paragraphs have now been added in the first and last paragraph of Technical advances in Ureteroscopy which reads:

The use of URS has dramatically increased over the last 30 years mainly due to the rapid speed of technological advances. Since the advent of the first recorded URS in 1912 [14]; the past century has seen a continued development of the ureteroscope alongside diversification of its use. Evaluation of the urinary tract was initially explored with specula, next came urethroscopy with dilatations of the urethra using knives and wax instruments [15]. The prototype endoscope, the "Lichtleiter", was introduced back in 1806 by Phillip Bozzini, and consisted of a hollow tube transmitting candlelight via a mirror [15]. This enabled the first true endoscopic operation in 1853 when Desormeaux extracted a urethral papilloma through the endoscope [15]. Further modifications to the endoscope were introduced by the

dermatologist Grunfield of Vienna, who developed an endoscopic loop threader and scissor forceps allowing the first endoscopic bladder papilloma excision in 1881. The step from idea to realisation of endoscopic surgery was difficult and protracted. Bozzini and colleagues ideas from the early 1800's were well ahead of their time. They were considerably hindered by the technical capabilities of the nineteenth engineering, which resulted in clumsy and heavy instruments. In parallel with the development of the cystoscope there was continuing advancements in the endoscopic light source. A system of mirrors and lens' were introduced alongside candlelight to transmit light through a hollow tube; this idea was superseded by fibre-optic technology utilising the principle of internal reflection permitting the 'bending' of light within flexible glass [16]. These principle and understanding lead onto the development of the first rigid ureteroscope in 1980. This was developed by Perez-Castro in collaboration with Karl Storz, incorporating a separate working and optic channel. These developments allowed the art of ureteroscopy to flourish and develop over the last 35 years [17].

Laser offers the surgeon a safe, effective method of stone fragmentation. One real benefit is the fact that laser can be manoeuvred around bends, enabling it to be used throughout the kidney. The lithotripter, although a useful adjuvant for ureteroscopy, has its limitations including stone retropulsion back into the kidney. The lithotripter is still commonly used for percutaneous nephrolithotomy surgery (PCNL), where larger stones can be fragmented quickly, without the need to manoeuvre around each calyx.

6. In surgical management of stone disease ; the authors can give more information about URS approaches to the stones with different localizations. URS first beginned

to use for lower ureteral stones and partly for mid ureteral stones, and then for proximal stones. The location of stone is important fort he success and complication of procedure.

Answer: This has now been done in paragraph 3 and 4 under surgical management of stone disease and reads –

The position of the stone in the ureter directly reflects in the success of the procedure. More distal stone have higher success rates when treated with rigid ureteroscopy, compared to the more proximal stones [24]. Indeed proximal stones can fall back into the kidney, therefore they often require a concurrent flexible ureteroscopy to achieve good stone free rates. Current guidelines recommend ureteroscopy, over other treatments including SWL, for the majority of ureteric stones [24].

In terms of stone size conservative management may be appropriate for smaller stones; 95% of stones up to 4mm pass within 40 days [25].

7. Although URS is minimally invasive procedure, it has major complications such as avulsion or stricture. The authors should discuss the complications more detailed.
Answer: These have now been done under Ureteroscopy in the current era and reads –

As with any procedure complications can happen, but the reported complication rates are relatively low [29, 31]. The overall complication rate for URS is approximately 3.5%; which are mostly minor. Probably the most feared complication of ureteroscopy is ureteral avulsion, however it is rare (<1%). Common complication include mucosal or ureteric injury (1.5- 1.7%), post-operative fever (1.8%), urosepsis, haematuria, ureteral stricture (0.1%) and persistent vesicoureteric reflux (0.1%) [32, 33].

8. References should be reviewed by authors and if there was some references from a possible" reference of references", these should be corrected. References amended with PMID and DOI – although not able to obtain for all?
Answer: These have now been done.

Reviewer 2

A very well written review of current status of "state of art" interventions in kidney stone disease. I only recommend authors include one table and include the advantages and disadvantages of all biological procedures they are adding to in the manuscript. An evidence of all the studies performed with SWL, adding a seperate table will add to the value of the paper. In conclusion, the manuscript is well written and is well for any clnician toned. A few additions as above is to improve the quality of the paper.

Answer: These have now been done under Table 1.

Tables

Table 1: Advantages and disadvantages of different techniques [24]

	Contra-Indications	Advantages	Disadvantages
Percutaneous Nephrolithotomy (PCNL)	**Pregnancy, potential malignant kidney tumour, tumour in access tract area, atypical bowel interposition**	• **Large renal and staghorn stones** • **Able to remove large fragments** • **Quicker large stone fragmentation and removal**	• **Needs renal puncture plus dilatation** • **Renal bleeding +/- embolisation** • **Patient positioning (often prone)** • **Requires a general anaesthetic (with risk in prone ventilation)** • **Multiple days inpatient stay**
Shock wave lithotripsy (SWL)	**Infection, pregnancy, arterial aneurysm, bleeding diatheses, distal ureteric obstruction**	• **Non-invasive treatment** • **Out-patient treatment** • **No anaesthetic needed**	• **Lower success rates** • **Renal colic (secondary stone fragments)** • **Steinstrasse** • **May need multiple treatments** • **Success rates less for lower calyx stones**
Ureteroscopy (URS)	**None**	• **No incisions** • **Day case procedure** • **Can be used in pregnancy, obese and patients not suitable for prone position**	• **Might require 2 operations for stone clearance** • **May need a ureteric stent post op** • **Ureteric avulsion/strictures** • **Requires a general anaesthetic**