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*Sexual Health*

### **Supplementary Material**

#### **Increasing attendance at pre-booked sexual health consultations: a systematic review**

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Supplementary File 1: Search terms developed for use across different databases.

Database	Search terms
Web of Science	(Sexual health OR genitourinary medicine OR STI OR contraception OR reproductive health) AND (consultation OR appointment OR clinic OR testing OR screening) AND (intervention) AND (*attendance) AND (adult OR youth OR adolescen* OR teen* OR MSM)
ProQuest	(AB,TI(Sexual health OR genitourinary medicine OR STI OR contraception OR reproductive health)) AND (AB,TI(consultation OR appointment OR clinic OR testing OR screening)) AND (AB,TI(intervention)) AND (AB,TI(attendance)) AND (AB,TI(adult OR youth OR adolescen* OR teen* OR MSM))
PubMed	(Sexual health[tiab] OR genitourinary medicine[tiab] OR STI[tiab] OR contraception[tiab] OR reproductive health[tiab]) AND (consultation[tiab] OR appointment[tiab] OR clinic[tiab] OR testing[tiab] OR screening[tiab]) AND (intervention[tiab]) AND (attendance[tiab]) AND (adult[tiab] OR youth[tiab] OR adolescen*[tiab] OR teen*[tiab] OR MSM[tiab])
Scopus	(Sexual health OR genitourinary medicine OR STI OR contraception OR reproductive health) AND (consultation OR appointment OR clinic OR testing OR screening) AND (intervention) AND (*attendance) AND (adult OR youth OR adolescen* OR teen* OR MSM)

AB, abstract; TI, title; tiab, title and abstract

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Supplementary File 2: Intervention characteristics and results

Author, country	Sample, inclusion criteria	Description of intervention	Duration	Findings	Conclusion
<b>Biggs (2016) [18]</b>  Australia	Intervention group: 306 Control group: 83  Inclusion: Aboriginal people attending the Deadly Liver Project	Intervention group: Culturally appropriate one-on-one education sessions for hepatitis C conducted with a \$20 incentive voucher for attendees. An additional \$10 offered for those who attended the co-located SHC with the health worker. A \$10 incentive voucher was given if individuals came back to collect results and have hepatitis B and C vaccination, plus another \$10 if they returned for last hepatitis B vaccination. Participants encouraged to recruit and educate three peers about hepatitis C. Participants receive \$10 voucher for each peer they brought back to the Deadly Liver Project and another \$10 for each peer who could recall information about hepatitis C accurately. Peers would then be recruited into the project, and the process would start again.  Control group: Aboriginal clients who attended the SHC between the 5 years and 4 months before the implementation of the Deadly Liver Project.	12 months	During the first 12 months of the Deadly Liver Project there was a significant rise in the number of Aboriginal people attending the SHC ( $p = < 0.01$ ).  There was no statistical difference in the return rates between the intervention group (55%) and the control group (66%). However, 16% of the Deadly Liver Project participants made between 3-6 visits to the SHC after their involvement with the project.	The intervention effectively increased the number of people attending the SHC, however it is not possible to distinguish the importance of a peer intervention or financial incentive.
<b>Bourne (2011)</b>	SMS Group: 714 Comparison Group: 1084	SMS group: SMS text reminder 4 months after baseline test to return for	9 months	In the SMS group, 64.4% re-testing rate within 9	SMS reminders can increase HIV/STI

<p><b>[19]</b></p> <p>Australia</p>	<p>Pre-SMS Group: 1753</p> <p>Inclusion: High-risk MSM (defined by self-reported sexual behaviour).</p> <p>Exclusion: MSM with HIV infection or MSM living outside of New South Wales in previous 12 months.</p>	<p>next screening.</p> <p>Comparison group: MSM who used clinic at the same time as SMS group who did not receive SMS reminder.</p> <p>Pre-SMS group: Prior to SMS programme was implemented</p>		<p>months compared to 29.7% in the comparison group (<math>p&lt;0.01</math>), and 31% in the pre-SMS group (<math>p&lt;0.01</math>).</p> <p>Retesting was 4.4 times more likely (95% CI 3.5 to 5.5) in the SMS group than the comparison group, and 3.1 times more likely to be retested (95% CI 2.5 to 3.8) than the pre-SMS group.</p>	<p>retesting rates among MSM.</p>
<p><b>Burton (2014) [20]</b></p> <p>United Kingdom</p>	<p>Intervention group: 273</p> <p>Control group: 266</p> <p>Inclusion: Higher risk individuals (diagnosed with chlamydia, gonorrhoea, acute viral hepatitis or syphilis; women who received emergency contraception; commercial sex workers; MSM and are in window period for HIV)</p>	<p>Intervention group: SMS text reminder to return for test sent 6 weeks (range: 2-12 weeks) after initial test.</p> <p>Control group: Usual clinic practice to advise higher risk patients to return for testing.</p>	<p>4 months</p>	<p>There were no significant differences in reattendance rates between the intervention group (35%; 89/274) and the control group (35%; 92/266).</p> <p>There were also no significant differences in reattendance between the high-risk groups.</p>	<p>The use of SMS reminders to retest did not increase reattendance rates in a high-risk patient group.</p>
<p><b>Downing (2013) [26]</b></p> <p>Australia</p>	<p>Group 1 (control): 32</p> <p>Group 2 (SMS reminder): 32</p> <p>Group 3 (SMS reminder &amp; incentive): 30</p>	<p>Group 1: Usual clinic advice to return for retesting in 3-4 months.</p> <p>Group 2: Usual clinic advice to return for retesting and SMS text reminder at</p>	<p>4 months</p>	<p>6.3% of participants in group 1 returned for retesting. The rates of retesting were significantly higher in</p>	<p>The use of SMS reminders with or without incentive payments significantly increase</p>

	<p>Inclusion: Clients who were attending for chlamydia treatment; presenting with genital symptoms; who were in contact with someone diagnosed with chlamydia; has access to a mobile telephone.</p> <p>Exclusion: Individuals who are HIV positive, and clients subsequently found not to have chlamydia.</p>	<p>10-12 weeks post-treatment.</p> <p>Group 3: Usual clinic advice to return for retesting and SMS text reminder 10-12 weeks post-treatment which included \$10 incentive payment on their return to clinic</p>		<p>group 2 (28.1%; p = 0.04) and group 3 (26.7; p = 0.04).</p>	<p>retesting rates in individuals diagnosed and treated with chlamydia.</p>
<p><b>Guy (2013) [21]</b></p> <p>Australia</p>	<p>SMS group: 141 Non-SMS group: 202 Before-SMS group: 338</p> <p>Inclusion: Heterosexual women and men diagnosed as having chlamydia.</p> <p>Exclusion: Non-New South Wales residents and travellers; sex workers.</p>	<p>Intervention group: SMS reminder for rescreening sent on pre-established date identified as being convenient by the patient.</p> <p>Non-SMS group: Patients not sent SMS reminder during intervention period.</p> <p>Before-SMS group: Before the SMS programme was implemented.</p>	4 months	<p>The rescreening rates were significantly higher in the SMS group (30%) compared to the before-SMS period (21%) (p = 0.04), and patients in the SMS group were 1.57 times more likely to be rescreened (95% CI 1.01 to 2.46).</p> <p>No significance difference was found in the rescreening rates in the SMS group (30%) compared to the non-SMS group (25%) (p = 0.30)</p>	<p>A SMS reminder significantly increased rescreening rates in heterosexual women and men compared to those not sent a SMS reminder in the before period. SMS reminders may need to be coupled with other strategies to increase effectiveness.</p>
<p><b>Ingersoll (2015)</b></p>	<p>Control group: 30 Intervention group: 33</p>	<p>Control group: usual care</p>	3 months	<p>There was no significant difference to attendance</p>	<p>The texting system used was feasible</p>

<p><b>[28]</b></p> <p>America</p>	<p>Inclusion: 18 years or older; active prescription of ART; reported less than 95% ART adherence in last 2 weeks; used illicit drugs and/or drank at levels considered risky in last 30 days; can speak and read English well.</p>	<p>Intervention group: Daily messages asking about medication dose, participant mood and substance use. Participants could respond Y/N to receive personalised messages created by the participant for six different contingencies.</p>		<p>between the groups. Missed visits improved from 23% to 9% to intervention group and 31% to 28% in usual care group (<math>p=.12</math>).</p>	<p>and highly acceptable. Personalised directional text messages shows promise to improve visit attendance.</p>
<p><b>Malotte (2004) [27]</b></p> <p>America</p>	<p>Intervention 1: 141 Intervention 2: 144 Intervention 3: 136 Intervention 4: 29 Intervention 5: 27 Intervention 6: 25</p> <p>Inclusion: those who had just received treatment for gonorrhoea or chlamydia, live in catchment area and are between 14-30 years of age.</p>	<p>Intervention 1: standard treatment (counselling and provision of appointment card with mutually agreed 3-month date of return and message stating the of importance of returning). Intervention 2: Intervention 1 + \$20 incentive paid at return visit Intervention 3: Intervention 1 + motivational counselling at first visit lasting 13-25 minutes, and reminder phone call or letter at 3 months. Motivational counselling included: assessment and enhancement of clients' self-perception of risk; review of previous health-seeking behaviour; identification and reinforcement of factors supporting return to SHC; identification and addressing of barriers to return; summary of need for a return visit; client commitment to return to SHC. Intervention 4: Intervention 1 Intervention 5: Intervention 1 + reminder phone call or letter</p>	<p>3 months</p>	<p>The return rates were 11.4% for intervention 1, 13.2% for intervention 2 and 23.9% for intervention 3. When compared to intervention 1, the odds ratio for intervention 2 was 1.15 (95% confidence interval [CI], 0.6 – 2.4), and 2.49 (95% confidence interval [CI], 1.3 – 4.8) for intervention 3.</p> <p>The return rates were 3.4% for intervention 4, 33.3% for intervention 5 and 12% for intervention 6. When compared to intervention 4, the odds ratio for intervention 5 was 12.3 (95% confidence interval [CI], 1.4 – 112) and 2.50 (95% confidence</p>	<p>Findings suggest that telephone reminders are the most effective method to increase attendance behaviours at SHC. Motivational interviewing is a useful secondary mechanism to increase return rates.</p>

		Intervention 6: Intervention 1 + motivational counselling		interval [CI], 0.2 – 28.0) for intervention 6.	
<b>Norton (2014) [29]</b> America	Control group: 27 Intervention: 25  Inclusion: HIV infection; aged over 17 years; own a mobile phone with text messaging plan; ability to provide written, informed consent	Control group: standard care which includes automated reminder call to patient's home phone  Intervention group: Automated SMS reminder about upcoming clinic appointment + standard care	1 month	Attendance rates did not differ between the control group (81%) and the intervention group (72%) ( $p = 0.42$ )	Although SMS reminders may be beneficial in some populations, barriers to implementation need to be addressed before implementation.
<b>Nyatsanza (2016) [22]</b> United Kingdom	Intervention group: 266 Control group: 273  Inclusion: Higher risk individuals (diagnosed with chlamydia, gonorrhoea, acute viral hepatitis or syphilis; women who received emergency contraception; commercial sex workers; MSM and are in window period for HIV)	Intervention group: Personalised SMS text reminder to re-attend for testing sent 6 weeks after initial test. SMS message included patient's first name and clinic contact details.  Control group: Non-personalised SMS text reminder to re-attend for testing sent 6 weeks after initial test. SMS message included clinic contact details.	4 months	Reattendance rates were significantly higher in the intervention group (56%; 149/266) than the control group (33%; 90/273) ( $p = 0.01$ ).	Sending personalised SMS reminders demonstrates a 23% increase in reattendance rates in higher risk patients.
<b>Rana (2016) [23]</b>	Intervention group: 32  Inclusion: HIV infected;	Intervention group: Participants self-selected SMS text reminders targeted towards appointment adherence,	6 months	During the 6 months, 94% of participants completed at least one visit and 72%	The findings support the acceptability of a bi-directional

America	English-speaking; ≥ 18 years of age; cell-phone capable of receiving texts; newly entering care within 1 year of diagnosis or re-engaging after lapse of 1 year or more; at risk of antiretroviral therapy on clinicians' opinion, or appointment non-adherence	medication adherence and addressing barriers to retention to care. Participants could text back questions or comments. The interventionist could assist over the phone with issues (e.g. transportation or appointment scheduling). The frequency of messages was determined between interventionist and participant at the start of the intervention. The interventionist rang monthly to inquire whether participants wanted to change the content or frequency of messages.		completed two visits.  47% attended all scheduled appointments, 22% attended one-half of scheduled appointments and 6% did not attend any.  Participants responded favourably in interviews to the convenience of receiving messages on their cell phone, reported an increased perception of support and felt that the bi-directionality made the intervention seem more personal.	mHealth intervention for patients at risk of disengaging with HIV care.
<b>Rutland (2012) [30]</b>  United Kingdom	Control: 88 Intervention 1: 85 Intervention 2: 79  Inclusion: 16-30 year olds who have missed a pre-booked sexual genitourinary medicine appointment	Control group: no intervention Intervention 1: SMS notification of missed appointment Intervention 2: SMS message with health promotional message about Chlamydia	1 month	4.5% in control re-attended compared to 8.2% (p=0.36) in intervention 1 and 15.2% (p=0.032) in intervention 2.  There were no STI diagnoses in control group compared to 29% in Intervention 1 and 25% in Intervention 2.	The addition of health promotional message with routine appointment reminder texts may reduce did not attend rates.
<b>Tanner</b>	Intervention group: 76	Intervention group: a combination of	12	The participants missed	The findings



<p><b>(2018)</b> <b>[24]</b>  America</p>	<p>Inclusion: 16-34 years, men who identify as homosexual or bisexual; transgender women; living with HIV.</p>	<p>social media messaging, texting, and app-based instant messaging was used to communicate theory-informed messages to patients. Participants could choose their preferred social media platform. Scripted messages were used as a guide and tailored to the specific context of the participant (e.g. age, time since diagnosis, specific challenges with care) to assist their unique needs (e.g. provider communication, family challenges, sexual health education). Messages initiated by the interventionist often included question to ensure that the participant engaged in conversation. Participants could initiate conversation if or when desired.</p>	<p>months</p>	<p>appointments significantly decreased from the 12 months before the intervention in comparison to the 12-month intervention period (68% vs. 53.3%, <math>p=0.04</math>).  The majority of conversations were initiated by the cyber educator (n = 3,343, 90.8%). Each participant had mean 41.3 conversations (range 1-100).</p>	<p>highlight the success a social media intervention with bi-directional, meaningful messages to help reduce missed medical appointments in MSM and transgender women.</p>
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<p><b>Zou (2013) [25]</b> Australia</p>	<p>3-month reminder group: 656 6-month reminder group: 301 12-month reminder group: 40 Concurrent control group: 1382 Historic group: 1800  Inclusion: MSM</p>	<p>SMS/email reminder groups: Upon clinic entry, patients used a computer-assisted self-interview which informed them about an epidemic of syphilis in MSM, information on how it is spread, the symptoms and how to detect it through a blood test. An option for 3-, 6-, or 12-monthly SMS text and/ or email STI check-up reminders were then offered. Patients received automated reminders based on preference.</p> <p>Concurrent control group: had not used computer-assisted self-interview and did not receive reminders.</p> <p>Historic group: Before the reminder-programme was implemented.</p>	<p>12 months</p>	<p>The number of patients returning to the clinic were significantly greater in those who had 3-monthly reminders (89.5%, <math>p&lt;0.01</math>), and 6 monthly reminders (87.7%, <math>p&lt;0.01</math>) compared to the concurrent control group (70.8%).</p> <p>Men in the reminder group had significantly more clinic visits during the 12-month observation period than the concurrent control group (median number of 2 vs 1, <math>p&lt;0.01</math>)</p>	<p>An automated reminder system using SMS text and email messages can increase STI testing and the detection of clinically important STIs among MSM.</p>
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ART, antiretroviral; MSM, men who have sex with men; SHC, sexual health clinic; SMS, short message service; STI, sexually transmitted infection.

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