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Literature review: pharmaceutical services for prisoners

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Purpose of document:

The purpose of the literature review is to provide an overview of the evidence for effective pharmaceutical services to prisoners.

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1 Summary

- *A pharmacy service for prisoners*¹ recommended that pharmaceutical services for prisoners should be; more patient-focused, based on identified need, and support and promote self-care. This includes a primary care emphasis, with more effective use of pharmacists' clinical and professional skills in the use and management of medicines, supported by extended roles for pharmacy technicians.
- *A pharmacy service for prisoners*¹ set the policy for increasing the use of medication in-possession so that, wherever possible, prisoners are responsible for administering and storing their own medicines as well as associated monitoring and administration devices. *Medication in-possession: a guide to improving practice in secure environments*² provides support for managed movement to in-possession as the default position where possible.
- Few studies have been published on pharmaceutical services in prison settings. The studies identified have focused on specific aspects of pharmaceutical services to prisoners. Overall, they found pharmacist-led and joint pharmacist-physician collaboration services to be feasible and effective. However, lack of clinical information technology within prisons can impact on the effectiveness of the medicines management process.
- Nine published observational studies of pharmaceutical services to prisoners were identified,³⁻¹¹ of which six took place in non-UK prison settings. Four of the eight studies were conducted in the USA,^{3,7,10,11} and two in France.⁵⁻⁶
- Four studies examined prescribing quality.³⁻⁶ Two studies involved treatment guideline development, education and feedback on prescribing practices, resulting in positive impacts on prescribing quality in 16 prisons in the USA³ and 1 in France.⁵ One study examined differences in prescribing quality between 3 UK prisons with different types of pharmacy provider.⁴ One study assessed interventions made by pharmacists and their acceptance by physicians on prescribing medication for prisoners in 1 prison in France.⁶
- Two studies related to pharmacist-led clinics for prisoners⁷⁻⁸ A pharmacist-led point-of-care service for warfarin management showed that non-therapeutic anticoagulation levels were identified and addressed quickly, and prevented common adverse events associated with warfarin use.⁷ A pharmacist-led dermatology clinic improved access to treatments, prisoners' understanding of their condition, and how to use their treatments.⁸
- One study examined the views of prison healthcare staff on pharmaceutical services provided to prisoners in 23 prisons in England.⁹ It concluded that there would need to be a significant culture shift before gaining wider acceptance of new/extended roles for pharmacists in prisons. Also, understanding the culture and expectations of prisons is essential to maximise the benefits from pharmaceutical services provided to prisoners.
- One study indicated that, selection of suitable quality indicators with appropriate methods to measure compliance, can provide an effective means of monitoring the quality of pharmaceutical services to prisoners and for identifying need for change and/or service development.¹⁰
- One study showed that implementation of an automated check-and-sort device in a centralised pharmacy department servicing over 140 prisons appeared to reduce

dispensing errors and gave pharmacists more time to review patient profiles and recommend clinical interventions.¹¹

2 Aim

The aim of the literature search is to identify formal guidance and published studies on pharmaceutical services to prisoners.

3 Background

The purpose of the literature review is to provide an overview of effective pharmaceutical services to prisoners. The literature review is intended to form part of a pharmaceutical needs assessment (PNA) for a prisoner population in Wales.

A prison PNA is intended to compliment the broader health needs assessments undertaken for prisoners in Wales but would focus on need in relation to the provision and use of medicines and pharmaceutical services.

For the purposes of the literature search, the term pharmaceutical services refers to the provision of pharmaceutical services such as the supply of medicines and advice, support for health and well-being, and better medicine taking.

4 Search strategy

Due to the prisoner population being a distinct population group, a search for policy and strategy guidance relating to pharmaceutical services for prisoners in the UK setting was carried out. Publications were included if they set policy direction or provided formal guidance on the commissioning, planning or delivery of pharmaceutical services for prisoners. The following internet websites were searched for relevant grey literature:

- Department of Health (England) (<http://www.dh.gov.uk>),
- Offender Health Research Network (<http://www.ohrn.nhs.uk>)
- Royal Pharmaceutical Society (<http://www.rpharms.com>)

A search was also carried out to identify relevant studies of pharmaceutical services for prisoners published in peer reviewed journals. The electronic databases; British Nursing Index, Embrace, Health Management and Information Consortium, Medline, and PsychInfo were systematically searched for the period January 1999 and June 2012. Letters and editorials were excluded.

The following MESH headings, key words and free text were used; chronic disease, dispen\$, drug utilization review, medic\$, medicines management, monitor, pharm\$, prescribe, prescribing, prison\$, review, self care, service\$.

The search was restricted to publications in the English language only. Boolean operators were used to combine searches.

Publications were included if they researched or evaluated one or more pharmaceutical services for prisoners. Publications were excluded if they related to pharmaceutical services for non-prisoner populations.

5 Guidance on pharmaceutical services for prisoners

Two formal guidance documents relating to pharmaceutical services for prisoners were identified.

A pharmacy service for prisoners (2003)

In 2003, the Department of Health (England) and HM Prison Service jointly published a report called *A pharmacy service for prisoners*.¹ It was produced as part of a wider programme to bring improved healthcare delivery to prisoners recognising that primary healthcare services were should be provided in the main. *A pharmacy service for prisoners* set out a way forward to develop more patient-focused pharmaceutical services for prisoners, based on identified need, and which supports and promotes self-care.

A pharmacy service for prisoners acknowledges the skills and expertise in pharmacy teams which could be used more effectively. The report outlines the clinical and professional, and technical components of a modern pharmacy service. It recognises the need to utilise the clinical and professional skills of pharmacists in the use and management of medicines, supported by extended roles for pharmacy technicians.

Over 30 recommendations were made to address the wide variation in the provision and quality of pharmacy services across the prison estate in England. *A pharmacy service for prisoners* has been broadly accepted, although not formally adopted, in Wales.

The principal conclusions of the report were:

- Pharmacy services to prisoners should be patient focused, be based on identified patient needs, and support and promote self-care.
- Developments in medicines management in the NHS, including repeat dispensing and medication review, should be reflected in pharmacy services provided to prisoners.
- All prisoners should have appropriate access to a pharmacist or pharmacy staff.
- In-possession medication should be the normal method of supplying medication in prisons.

A pharmacy service for prisoners sets the policy for the increasing use of medication in-possession. This means that, wherever possible, prisoners are responsible for storing and administering their own medicines together with associated monitoring and administration devices. Benefits include improvements in the continuity of care provided, and the workload and skill utilisation of pharmacy, healthcare and other prison staff.

Medication in-possession: a guide to improving practice in secure environments (2005)

*Medication in-possession: a guide to improving practice in secure environments*¹⁰ was produced to support local prison health partnerships to move, in a managed way, to the default position where prisoners normally possess and use their own medication.

6 Pharmaceutical services for prisoners evidence table

Ref. no.	Reference	Aim of research	Population/ setting	Design	Findings
3	Reeves R. Guideline, education, and peer comparison to reduce prescriptions of benzodiazepines and low-dose quetiapine in prison. <i>Journal of Correctional Health Care</i> 2012; 18: 45-52.	To assess the impact of a guideline for the evaluation and treatment of insomnia, an education initiative and, profiling of prescribing practices on prescribing levels of benzodiazepines and quetiapine.	Thirteen prisons in New Jersey. Prisoners who had been prescribed benzodiazepines or low-dose quetiapine. New Jersey, USA. Duration: 20 months (benzodiazepines), 22 months (quetiapine)	Use of non-pharmacological treatments was encouraged in the insomnia treatment guideline. Education for psychiatrists on the disadvantages of benzodiazepines and low dose quetiapine in prison. Low-dose quetiapine defined as 100mg or less daily. Anonymised comparison of prescribing practices by individual psychiatrists.	Reduction (absolute) in the mean number of prisoners prescribed benzodiazepines per full-time equivalent psychiatrist of 38% after 20 months ($p=0.003$). Reduction (absolute) in the mean number of prisoners prescribed low-dose quetiapine per full-time equivalent psychiatrist of 59% after 22 months ($p=0.065$).
4	Cryer L, Asghar MN, Masters G. Measuring prescribing quality in prisons can improve service quality. <i>Pharmacy in Practice</i> 2004; 14: 53-55.	To examine the use of prescribing quality markers in prison health services.	Three prisons in the north of England. Prisoners who had been prescribed medication. Duration: 3 months	Retrospective analysis of a sample of 769 anonymised prescription charts against 4 prescribing quality indicators in 3 prisons. Services were provided by in-house pharmacy departments for prisons 1 & 2, and by contracting with an NHS Trust hospital for prison 3.	Compliance with agreed indicators: Complete & clear prescription; range = 67%-88%. Lower rate for prison 3 ($p<0.0001$). Dose within BNF range; range = 80.7%-91.5%. Higher rate for prison 1. Potentially hazardous drug interactions; range = 0.3%-7.5%. Lower rate for prisons 1 & 2

Pharmaceutical services for prisoners evidence table**Continued**

Ref. no.	Reference	Aim of research	Population/ setting	Design	Findings
					(p=0.0001). Generic prescribing rates; range = 56%-74%. Higher rates for prisons 1 & 3 (p=0.0001)
5	Lerat MC et al. Impact of pharmacist and clinician dual intervention on prescribed benzodiazepines in prisoner patients: a retrospective study. <i>Fundamental & Clinical Pharmacology</i> 2011; 25: 762-67.	To assess the impact of psychiatrist and pharmacist collaboration on reducing the benzodiazepine dose prescribed to prisoner patients.	A prison in Lyon holding around 535 male prisoners. Prisoners who had been prescribed benzodiazepines. Lyon, France. Duration: 2 years, 2000 and 2004.	Retrospective analysis of prescribing data for prisoners prescribed a benzodiazepine for at least 3 months duration, once or more, with a medical follow-up by the same clinician. Prescribing data in 2000 (control group) and 2004 (intervention group) was compared to assess the impact of an intervention to reduce the benzodiazepine dose prescribed to prisoners. Daily dose of benzodiazepine were expressed in diazepam equivalent to compare groups. The intervention was introduced in 2001 with	Prescribing data for a total of 473 prisoners was analysed (from a population of 889 in total). 222 were in the control group and 251 in the intervention group. The mean daily dose of benzodiazepine was higher in the control group (C) than the intervention group (I) in the following categories: •Overall C=46mg, I=34mg •Sub-group with principal diagnosis of mental disorder; C=48mg, I=31mg •Sub-group with no concomitant treatment with opioids; C=44mg, I=31mg •Sub-group with no concomitant treatment with antidepressants; C=41mg, I=29mg

Pharmaceutical services for prisoners evidence table**Continued**

Ref. no.	Reference	Aim of research	Population/ setting	Design	Findings
				collaboration between psychiatrists and a pharmacist to develop benzodiazepine prescribing guidelines and discuss individual cases of high-dose benzodiazepine prescribing.	<ul style="list-style-type: none"> •Sub-group with concomitant treatment with antidepressants; C=53mg, I=38mg <p>The mean daily dose of benzodiazepine was higher in the intervention group than the control group in:</p> <ul style="list-style-type: none"> •Sub-group receiving concomitant treatment with buprenorphine; C=58mg, I=63mg
6	Montserrat M et al. A one year pharmaceutical interventions' assessment at the Strasbourg prison consultation and ambulatory care unit. <i>Int J Clin Pharm</i> 2011; 33: 453.	To identify the main contents of pharmaceutical interventions and to evaluate its acceptance by physicians.	Medication prescriptions for prisoners at Strasbourg detention centre. Strasbourg, France. Duration: 1 year.	Analysis of the types of interventions made by pharmacists to assess clinical activity. Interventions were recorded on the web site <i>Act Ip</i> of the French Society of Clinical Pharmacy	Over the study period: <ul style="list-style-type: none"> •2,638 prescriptions were analysed •87 pharmaceutical interventions were recorded. •80% pharmaceutical interventions were accepted by physicians <p>The main pharmaceutical interventions proposed were:</p> <ul style="list-style-type: none"> •Changing to formulary medicines (46%) •Dosage adjustment (33.5%)

Pharmaceutical services for prisoners evidence table**Continued**

Ref. no.	Reference	Aim of research	Population/ setting	Design	Findings
					<ul style="list-style-type: none"> • Stopping a medicine (8%) • Adding another medicine (4.6%) • Changes relating to the administration of medicines (2.5%)
7	Mathis D, O'Reilly K. Point-of-care INR determination, Coumadin dosage changes, and use of a historical, self-updating database in a prison. <i>Journal of Correctional Health Care</i> 2010; 16: 139-46.	Evaluation of a pilot pharmacist-led anticoagulation clinic in a prison.	<p>The Eastern Correctional Institution.</p> <p>Prisoners indicated for warfarin therapy.</p> <p>Maryland, USA.</p> <p>Duration: 12 weeks.</p>	<p>Analysis of clinical data for prisoners attending the pharmacist-led point-of-care anticoagulation clinic.</p> <p>Initial warfarin doses were selected by either the physician or the pharmacist.</p> <p>Dosage adjustments were made by the pharmacist.</p> <p>If an INR level was outside of the predetermined range, the pharmacist to inform any recommendations to the physician.</p> <p>The physician could also adjust a warfarin dosage set at the clinic, or discontinue use of the anticoagulation</p>	<p>12 prisoners enrolled in the service at the start of the pilot.</p> <p>At baseline, 50% (6/12) had INR levels within the desired range.</p> <p>After 12 weeks, 67% (8/12) had INR levels within the targeted therapeutic range.</p> <p>During the 12 week period, 79 point-of-care INR levels were obtained.</p> <p>Examples of pharmacist and physician proactive collaboration to make dosage adjustments and prevent potential adverse events included:</p> <ul style="list-style-type: none"> • Stopping warfarin therapy before dental procedures. • Averting a serious antibiotic-warfarin interaction.
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Pharmaceutical services for prisoners evidence table**Continued**

Ref. no.	Reference	Aim of research	Population/ setting	Design	Findings
				protocol.	As a result of the antibiotic-warfarin interaction, the anticoagulation clinic is consulted before starting an antibiotic for prisoners taking warfarin therapy.
8	Tucker R. Exploring prisoners' views of a pharmacist-led dermatology clinic. <i>Pharmacy in Practice</i> 2004; 14: 113-14.	To explore prisoners' views of a pharmacist-led dermatology clinic.	HMP Moorland, a male prison in the north of England which holds around 750 male prisoners. Prisoners who had attended the pharmacist-led dermatology clinic. Duration: not stated	Semi-structured questionnaire to a sample of 102 prisoners who had presented at the new pharmacist-led dermatology clinic.	The questionnaire response rate was 100% (102/102). The results indicate that: • Access to the new service is relatively quick. 51% were seen within 1 week and 89% within 2 weeks. • There appears to be a high level of satisfaction with the advice provided by the pharmacist. • The majority of respondents gained a better understanding of their condition after visiting the clinic.
9	Asghar MN, Cryer L, Masters G. Examining prison pharmacy services. <i>Pharmacy in Practice</i> 2003; 13: 134-37.	To determine the views of healthcare staff on pharmaceutical services provided to prisons in northern England.	Healthcare staff in 23 prisons in the north of England Duration: 4 months	Structure postal questionnaires to a sample of 427 identified prison nurses, healthcare officers, medical staff and healthcare managers in 23 prisons.	The questionnaire response rate was 91% (21/23) for prison establishments and 20.4% (87/427) for healthcare staff. The results indicated that: • Pharmaceutical input to the prisons was variable.

Pharmaceutical services for prisoners evidence table**Continued**

Ref. no.	Reference	Aim of research	Population/ setting	Design	Findings
					<ul style="list-style-type: none"> • Respondents described a traditional view of the service. • The majority were aware of Drugs and Therapeutics Committees and their role. • Pharmacy staff were seen as mainly providing a traditional dispensing and supply role. • The level of service satisfaction varied. • Suggestions for improvements focused on traditional supply roles. • Respondents were less confident about accepting the role of pharmacists in areas such as medication history taking.
10	Roberts MB, Keith MR. Implementing a performance evaluation system in a correctional managed care pharmacy. <i>Am J</i>	Evaluation of a departmental performance evaluation system for a correctional managed-care pharmacy.	Centralised pharmacy distributing 9,000 to 15,000 medication orders daily to over 140 correctional	Seven pharmaceutical care quality indicators were chosen and weighted by perceived importance. A system for data collection, measurement, and reporting	In the fiscal year 2001, the pharmacy department scored above 90% on each of the following indicators: <ul style="list-style-type: none"> • Dispensing errors • Missing medications

Pharmaceutical services for prisoners evidence table**Continued**

Ref. no.	Reference	Aim of research	Population/ setting	Design	Findings
	<i>Health Syst Pharm</i> 2002; 59: 1097-1104.		facilities state-wide with around 150,000 offenders. Texas, USA. Duration: 1 year.	was also developed. Performance standards were developed for each indicator. Indicators were assessed monthly for quality assurance purposes. Level of performance was defined as percent compliance with set standards. Quarterly and annual performance scores were calculated.	<ul style="list-style-type: none"> • Misshipments • Pharmacist medication profile-review productivity • Support staff productivity • Prison-unit pharmacy audits <p>Scores for the pharmacist clinical interventions indicator consistently fell within the 70th percentile. Over the fiscal year 2011 the quality and monthly number of clinical interventions rose as more 'therapeutic' interventions were carried out.</p>
11	Carmenates J, Keith MR. Impact of automation on pharmacist interventions and medication errors in a correctional health care system. <i>Am J Heath-Syst Pharm</i> 2001; 58: 779-83.	Evaluation of the impact of an automated check-and-sortation system on pharmacist interventions and dispensing errors in a correctional health care system.	Centralised pharmacy providing dispensing and distributive services to around 140,000 prisoners in over 140 correctional facilities state-	Analysis of the number of clinical interventions by pharmacists, filling errors and dispensing errors during the 12 months before automation compared with 16 months post-automation. Filling errors were defined as errors identified before shipment.	Pharmacist clinical interventions increased from 396 to 1,075 per 100,000 medication orders filled after automation. During the last 9 months of the study the intervention rate further increased to 1,138 per 100,000 orders (187% of the pre-automation rate). Dispensing errors decreased from 6.3 to 4.1 per 100,000 orders after

Pharmaceutical services for prisoners evidence table

Continued

Ref. no.	Reference	Aim of research	Population/ setting	Design	Findings
			<p>wide.</p> <p>Texas, USA.</p> <p>Duration: 28 months.</p>	<p>Dispensing errors were defined as voluntarily reported to the pharmacy after shipment.</p>	<p>automation. A further reduction to 3.3 per 100,000 orders was noted during the final 9 months of the study.</p> <p>Detection of filling errors increased from 224 to 256 per 100,000 orders.</p>

7 References

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