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# Questionnaire to avoid transfers to healthcare: a Brazilian experience

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## Abstract

**Purpose** – The purpose of this paper is to test whether training correctional facility (CF) officers in the admission process would identify risk factors for inmates' unscheduled transfers to healthcare units in the first 24 hours.

**Design/methodology/approach** – Correctional officers (COs) were trained to use a questionnaire with ten closed questions, which seeks to identify occupational or nosocomial risk, applied upon the admission of inmates to a CF.

**Findings** – There were 1,288 admissions in six CFs in Ribeirão Preto and Serra Azul/Brazil from March 2010 to May 2011. Of those admissions, 21.2 percent were in penitentiaries and 78.9 percent in provisional detention centers. Of the questionnaires applied, 580 answered affirmatively (45 percent) for one or more of the questions, with nearly 60 percent related to drug use in the last 12 hours, 37.7 percent use of medications while the most frequently mentioned diseases were respiratory diseases (37 percent) and mental disorders (19 percent). The number of positive responses per evaluation presented an odds ratio of 3.6 (CI 95% – 1.6, 10.5) for unscheduled transfers for external clinical evaluation.

**Research limitations/implications** – The lack of a control group and the fact that morbidities described by prisoners could not be confirmed are study limitations. The research does, however, still contribute to the goal of achieving appropriate medical care within CFs.

**Originality/value** – The training of COs to identify risk factors that predict the need for unplanned transfers to healthcare units was feasible. These findings have important implications for CFs that do not provide ongoing medical service, a universal reality in Brazil.

**Keywords** Healthcare, Brazil, Prison, In-service training, Access to health services, Management of patient care

**Paper type** Research paper

## Introduction

Currently, there are over 10.3 million imprisoned persons in the world. The USA is at the top of the ranking list in terms of absolute numbers incarcerated, followed by China, Russia and Brazil (Walmsley, 2016). While numbers in Brazil have grown slowly, there has been an increase in the number of people detained of about 7 percent a year, resulting in a total of 879,637 currently being held in closed, semi-open and private (at home) regimes (National Justice Council Brazil, 2016a, b). In the 2000s, there were 133 prisoners per 100,000 inhabitants, and today there are 301, far higher than the world rate of 144/100,000 (Walmsley, 2016). The state of São Paulo is responsible for the incarceration of more than 25 percent of the Brazilian prison population. About nine people are arrested each day in this state, worsening overcrowding in correctional facilities (CFs) (National Justice Council Brazil, 2016b).

There are 2,775 CFs established in the 27 states that make up the Brazilian territory. These units can accommodate 388,732 people, but currently house 636,419 inmates, causing overcrowding and a shortage of 247,687 vacancies (63.7 percent). In the state of São Paulo, this reality is not very different from the rest of the country, as there is currently a deficit of 94,392-70.3 percent (National Justice Council Brazil, 2016a, b).

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Brazilian CFs are overwhelmingly antiquated. In addition, they are overcrowded, dark, humid and poorly ventilated. These conditions can often aggravate pre-existing conditions and encourage the development of new pathologies. These are often psychiatric disorders or those related to intimate contact, such as sexual diseases or other conditions transmitted by prolonged incarceration (Condon *et al.*, 2007; De Viggiani, 2007; Fernandes *et al.*, 2014; Gois *et al.*, 2012; Souza Filho and Bueno, 2016).

Despite this increased susceptibility in 2016, only 271 healthcare teams operated within Brazilian CFs, covering only one-third of the prison population (Souza Filho and Bueno, 2016). In terms of infrastructure, a study conducted across the state of São Paulo with prison wardens showed that, in their opinion, CFs had adequate support for primary healthcare, but experienced difficulties keeping healthcare professionals, especially doctors (Fernandes *et al.*, 2014).

Furthermore, the healthcare currently provided is small, focusing on the solution of specific issues and is often performed in external healthcare facilities connected to the public healthcare system (Damas and Oliveira, 2013). This external care is expensive for the state and hampered by various barriers, such as transportation to other facilities, which requires a military police escort, and monitoring of the correctional officers (COs) who accompany prisoners through the healthcare process. Given the continental dimensions of Brazil, healthcare services often take place many kilometers away from CFs, making transportation costly and dangerous due to the risk of escape. A further barrier is coordinating schedules of all the services involved in healthcare: COs, military escort, appointment schedules and medical diagnosis and treatment. In contrast, many diseases could be easily treated and monitored inside CFs by doctors trained to work in primary healthcare (Fernandes *et al.*, 2014; Assis, 2007).

Studies state that the diseases acquired by inmates within CFs have implications for the health of their families and the community, as well as having deleterious repercussions on reintegration into society. In this sense, initiatives aimed at health promotion and disease prevention are essential in the prison environment but still occupy a secondary place in the CFs' goals. When carried out, they are often restricted to vaccination campaigns or screening for tuberculosis, hepatitis, syphilis or HIV aimed at the early detection of diseases. International studies show that the actions of health promotion carried out in the CF scenario can improve self-esteem, self-confidence and the well-being of inmates while also promoting reintegration and re-socialization (Wildeman and Wang, 2017; Santora *et al.*, 2014; World Health Organization, 2014).

The process of granting prisoner access to the limited in-facilities health services varies depending on each facility's administration; in some units, it is controlled by COs, in others, by a hierarchy established by the inmates, determining who will receive care or not, regardless of clinical criteria (Sánchez *et al.*, 2016). In other units, the patients request healthcare through slips of paper on which they write down complaints or problems and forward them to healthcare services. The nursing staff evaluate these and refer patients to medical care inside the CFs or external healthcare. Inmates are transferred to distinct levels of care in other health services if considered as an emergency. Conditions that result in this classification include chest pain, convulsive crises and suspected strokes. Cases that require follow-up with specialized outpatient care services or those not characterized as emergencies are scheduled and transferred to regional health services during regular business hours.

The CFs admission process involves three phases: orientation on prison regulations – prison rules, rights and duties; distribution of personal items – clothes, personal hygiene items, bed linen and a mattress; and inmates' interview with health professionals concerning the presence of acute or chronic diseases, ongoing medication, presence of tattoos and use of cigarettes, drugs and narcotics. This third step, undertaken by healthcare professionals, is not conducted in all units. The process evaluates the inmates' health conditions upon entering the facility and identifies clinical situations that can result in complications that will require emergency care, such as drug withdrawal, convulsive and hyperglycemic crises, etc. The third phase, called "assessment," is still lacking in many CFs due to a lack of health professionals.

To address this, we created a questionnaire for COs to apply during inmate admission and to assist in the process of identifying conditions that could put the patient, his colleagues or the CF

personnel in jeopardy. Based on our previous work, we were aware that clinical emergency problems occur more frequently within 24 hours of admission, so we hypothesized that this intervention would have a significant impact since early identification would provide valuable time to deal with these potential critical situations. Thus, our study aimed to test whether training CF officers in the admission process would assist in identifying risk factors that could result in unscheduled transfers to healthcare units in the first 24 hours.

## Methodology

We conducted a cross-sectional, descriptive and analytical study evaluating the use of a questionnaire to assist COs in the identification of risk factors for complications at prisoner admission in Brazilian CFs in the first 24 hours. The process presented various interdependent steps: instrument creation, manual preparation and professional training.

### Scenario

The study was carried out in the northeastern region of the state of São Paulo, Brazil, including six CFs, four penitentiaries and two provisional detention centers (PDC) located in the municipalities of Ribeirão Preto and Serra Azul.

PDCs are designed to house people awaiting trial and present with a high number of occupants. It is noteworthy that, as in other developing countries, 41 percent of the Brazilian prison population has not yet been tried or sentenced and await trial in the PDCs (World Health Organization, 2014; Souza Filho and Bueno, 2016). In penitentiaries, the rotation is smaller, because they house people already tried and convicted.

Ribeirão Preto has approximately 670,000 inhabitants (Instituto Brasileiro de Geografia e Estatística (IBGE), 2017a, b), and has a PDC and two penitentiaries, one male and one female (Secretaria de Administração Penitenciária do Estado de São Paulo, 2017).

The other CFs enrolled in the study are in Serra Azul, 40 kilometers away from Ribeirão Preto, with about 14,000 inhabitants and three CFs, two for males (one exclusively for housing those convicted of sexual crimes) and a PDC (IBGE, 2017a, b; Secretaria de Administração Penitenciária do Estado de São Paulo, 2017).

### Questionnaire development

We developed a questionnaire as we were unaware of any existing instrument. We referred to the previous study conducted by our group that had identified critical situations, specifically those that required urgent treatment (in the first 24 hours after admission), such as respiratory isolation, that could jeopardize other prisoners or staff (Fernandes *et al.*, 2014).

The questionnaire has ten questions (Table I) addressing the use of medications for chronic conditions (systemic arterial hypertension, diabetes mellitus, tuberculosis, HIV, seizure control) and use of controlled drugs (legal or illegal). There are also questions that investigate the presence of symptoms of transmission diseases such as fever or rash.

The COs were trained to ask the questions in accessible language and record responses as “yes” or “no.” Pilot testing was carried out to evaluate consistency, and no adjustments were needed.

COs were instructed to administer the questionnaire during the admission process, and when in receipt of a positive responses (“yes”), refer the prisoner for interview by a CF healthcare professional. In cases of doubt, the prisoner would be kept in isolation until healthcare professionals could evaluate them.

A manual was created to facilitate the implementation of the questionnaire, consulted if COs had doubts and stimulate their qualification. The researchers visited the CFs weekly to monitor the ongoing instrument application, answer questions and evaluate the process. The questionnaire was applied from Monday to Friday during business hours, when most CFs admissions take place.

**Table I** Proportional distribution of the number of “yes” answers questions in the admission questionnaire, according to the type of detention and the overall total

Question	Prisons ( <i>n</i> = 272; 21.2%)	PDCs ( <i>n</i> = 1,016; 78.9%)	<i>p</i>	Total
1. Have you had fever in the last two days?	23 (8.4%)	40 (3.9%)	< 0.01	63 (4.9%)
2. Do you feel itching in your armpits or groin?	28 (10.3%)	29 (2.8%)	< 0.01	57 (4.4%)
3. Do you have to take blood pressure medication every day?	10 (3.7%)	46 (4.5%)	0.56	56 (4.1%)
4. Do you have to take medication or apply injection for blood sugar problems (diabetes) every day?	0 (0%)	9 (0.9%)	0.12	9 (0.7%)
5. Are you taking medication to treat tuberculosis, or have you been told that you have tuberculosis?	5 (1.8%)	12 (1.9%)	0.38	17 (1.3%)
6. Are taking medication for AIDS (also known as a cocktail)?	5 (1.8%)	12 (1.9%)	0.38	17 (1.3%)
7. Are you taking medication for seizures?	11 (4.0%)	24 (2.3%)	0.12	35 (2.7%)
8. Are you taking controlled medication for nerve problems?	24 (8.9%)	61 (6.0%)	0.08	85 (6.6%)
9. Do you have any other diseases, or do you have to take any medication recommended by the doctor every day? Write down what the inmate says if the answer is yes: (disease _____) (Medication _____)	57 (21.0%)	144 (14.2%)	< 0.01	201 (15.6%)
10. Did you use any drugs (marijuana, cocaine, crack) in the twelve hours before you came here?	51 (18.8%)	296 (29.1%)	< 0.01	347 (27.0%)

We documented the occurrence of transfer events during the study period, where prisoners were moved to healthcare services from CFs registered in official information systems. We defined unscheduled transfers as those carried out in the first 24 hours after admission to the CF.

### Professional training

We trained a total of 50 COs drawn from Ribeirão Preto and Serra Azul from CFs enrolled in a dedicated course (registered at the University of São Paulo, No. 10.1.01638.17.5). The aim of the course was to equip COs with knowledge of basic healthcare issues that present occupational or nosocomial risks and to train them in practical application of the admission questionnaire. This process consisted of two face-to-face meetings of six hours, as well as field training and development of educational materials distributed for study purposes.

### Data storage and analysis

We entered and stored the data in a dedicated Microsoft Access database. We coded questions as 1 if the answer was “yes” or 0 if it was “no.” We derived a variable corresponding to the sum of all issues for each inmate. We kept copies of the database in dedicated computers synchronized with a cloud database. All computers and the cloud service were protected by passwords.

Univariate analysis included Student’s *t*-test or ANOVA and  $\chi^2$  test or Fisher’s exact test, as appropriate. Logistic regression to determine the odds ratio was used, with a confidence interval of 95%. For all tests, a *p*-value < 0.05 was considered for statistical significance. We used STATA Version 10 for data analysis and graph construction.

We obtained Human Research Ethics Committee approval from the institutions involved (the University of São Paulo and the CFs visited), in compliance with the security requirements recommended by the Prison Administration Department of São Paulo.

## Results

Between March 2010 and May 2011, 1,288 admissions were carried out in the six CFs studied: 272 (21.2 percent) in the four penitentiaries and 1,016 (78.9 percent) in the PDC located in the municipalities of Ribeirão Preto and Serra Azul.

Among the 1,288 admissions, 708 (55 percent) inmates answered “no” to all questions, with no difference according to prison facility type. Table I shows the total affirmative answers (“yes”), and their percentages, according to the type of CF.

Among the inmates who answered “yes” to the questionnaire, almost 60 percent were drug-related in the last 12 hours, 37.7 percent reported taking any of the medications listed and 34.6 percent had any disease or were on medications not covered in the questionnaire.

Of those 219 who answered, “yes” to using some medications: 20.0 percent were on controlled drugs, popularly known as “black stripe” medicines; 13.3 percent were using medications for systemic arterial hypertension, 8.3 percent for seizures and 4 percent for tuberculosis and HIV treatment. The diseases cited were related to the respiratory system (37 percent), mental disorders (19 percent), chronic degenerative diseases (17 percent) and gastrointestinal issues (10 percent) among others (17 percent).

Of the 580 inmates who answered “yes” to one of the questions, the healthcare personnel did not evaluate five and transferred another five for consultation in other external healthcare facilities after evaluation (0.4 percent of the total of inmates, and 0.9 percent of those who answered “yes” to any question).

The training of COs to identify risk factors that predict the need for unplanned transfers to healthcare units was feasible. These findings have important implications for CFs that do not provide ongoing medical service, a universal reality in Brazil.

Table II shows the answers to the ten instrument questions for the five inmates who were transferred, and the total sums of affirmative answers.

Questions 1 (fever), 2 (itching), 9 (illness/use of medication) and 10 (illicit drug use) in Table I showed statistically significant differences when compared by type of CF; all were more prevalent in penitentiaries, except Question 10.

As for the number of affirmative responses and the occurrence of complications, Figure 1 shows the absolute number of affirmative answers (A) and the percentage that required inmate transfer (B).

Only Questions 1, 2, 8, 9 and 10 related with the outcome in univariate analysis and were selected for a step forward logistic regression modeling. Only Questions 1 (odds ratio 7.8 – CI 95%-1.1-52.7), and 9 (odds ratio 15.9 – CI 95%-1.7 to 149.0) were significant and constituted the final model.

Analysis of the number of affirmative answers by an inmate (0, 1, 2 and  $\geq 3$ ) obtained an odds ratio of 4.2 (CI 95%-1.6-10.5). Since all events were related to the PDC of Ribeirão Preto, the model was recalculated only for this population, which showed an odds ratio of 3.6 (CI 95%-1.3-10.1). The odds ratio of 3.6 means that an increase of one point in the sum of the answers coded one if affirmative (“yes”) increase the risk of unscheduled transfer in 360 percent in the first 24 hours after admission.

## Discussion

The use of a single, standardized questionnaire administered by trained COs in the CF admission process was feasible. The greater the number of affirmative answers observed, the greater the need to transfer the inmates for unscheduled external clinical evaluation. Of all the questions, the presence of fever in the last two days, and having a previous disorder/continuous medication use proved to be event predictors.

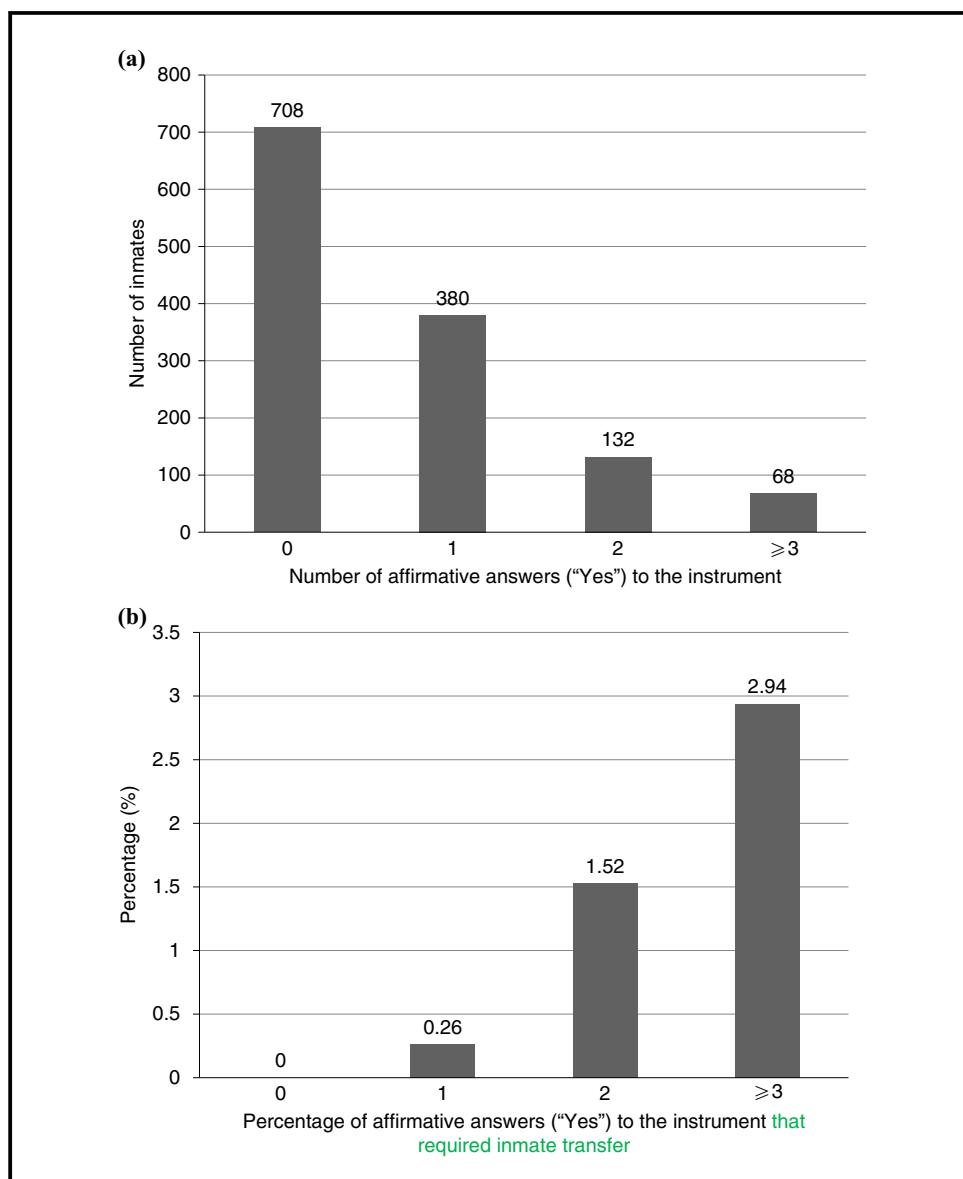
Although the presence of trained health professionals working in CFs is recommended (World Health Organization, 2014), this is not the norm in Brazil, with only 30 percent of CFs having

**Table II** Answers to the instrument questions for the five inmates who were transferred

<i>Transferred</i>	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>	<i>Q5</i>	<i>Q6</i>	<i>Q7</i>	<i>Q8</i>	<i>Q9</i>	<i>Q10</i>	<i>Total§</i>
1	1*	1	0**	0	0	0	0	0	1	1	4
2	1	0	0	0	0	0	0	0	0	0	1
3	0	0	0	0	0	0	0	0	1	1	2
4	0	0	0	0	0	0	0	1	1	1	3
5	0	0	0	0	0	0	0	0	1	1	2

**Notes:** \*Affirmative answers; \*\*negative answers; §total affirmative answers

**Figure 1** Relationship between the number of affirmative answers to the instrument (a) and the percentage of inmates that required transfer (b)



doctors as part of their health team (Souza Filho and Bueno, 2016). Most CFs have difficulty in securing doctors for their payroll, often due to stigma, insecurity, fear and low pay (Fernandes *et al.*, 2014). Thus, the implementation of this questionnaire can be a low-cost tool that helps in the CF admission process, contributing to the identification of risk factors that can lead to complications and inmate transfers to healthcare services.

Other countries have developed alternatives for helping and optimizing patient care: implementing clinical protocols, providing telephone or telemedicine to discuss emergency cases on the subject, provide mental healthcare and second-opinion consultations (Martin *et al.*, 2016; Chan *et al.*, 2003; Gualano *et al.*, 2016). These tools are valuable, offer a greater problem-solving capacity and better access to healthcare services. In Brazil, however, they should not be seen as a substitute for on-site medical evaluation. Further, they do not exempt the state from its obligation to include health professionals – such as doctors, nurses, and dentists – on the CF work team.

The COs successfully applied the questionnaires to many inmates with a significant proportion of affirmative “yes” answers. Practically all of them were evaluated, with only five participants not receiving an evaluation. Of those five, two had answered “yes” to Question 9 (previous illness/use of medication), which proved to be related to the possibility of a transfer for external evaluation. Furthermore, 80 percent of these cases originated from the Serra Azul PDC, a small town where the CF has no internal healthcare service when compared to Ribeirão Preto PDC. These two cities belong to the 13th Regional healthcare Department of the State of São Paulo, with headquarters in Ribeirão Preto, which has the largest concentration of medical resources in the area.

It is significant that 45 percent had some condition such as the presence of diseases, symptoms, or the use of illegal drugs/medication listed on the questionnaire that deserved at least medical evaluation upon admission, reinforcing the need for CFs to have on site a medical team qualified to perform such evaluations. These findings corroborate the previous studies (Fernandes *et al.*, 2014).

We emphasize that 85 percent of prisoners who reported having used illicit drugs in the last 12 hours at admission came from PDCs. Estimates suggest that half of the prisoners have a history of drug use and many continue to use within CFs, even with all the facilities precautions (World Health Organization, 2014).

The statistical significance of the question about the presence of illness/medication use, compared to others may be due to the breadth of the question; it is the reality in Brazil that many are unaware of why they use prescribed drugs. It is not uncommon for individuals to be unaware of their diagnoses, or unable to name the medications they are taking (Okere *et al.*, 2014). This finding is worrisome especially as there is a lack of electronic medical records relating to inmates. In addition, the transfer of detainees between facilities does not always include their written medical records. Also, medical records – although essential – are often poorly filled out, illegible and incomplete (Setz and D’Innocenzo, 2009; Adolphi Júnior *et al.*, 2010).

Another issue that can encourage detainees to answer affirmatively to the need for medications is the knowledge that they can be used as bargaining chips, a common practice in penitentiaries. Prescription of drugs is one of the major components of the clinical practice of health professionals working in CFs, and the medications are often traded by prisoners (Royal College of General Practitioner, 2011).

Our study has some limitations that require attention. First, we could not confirm the morbidities described by inmates by performing clinical or medical records analysis. It was also not possible to assess inter- and intra-observer variability in the field, although this was not a problem during pilot training.

Second, besides being poor, black and with low education levels, the majority of prisoners lack access to education and health services. Thus, it is plausible that incarcerated persons neglect to specify conditions, and subsequently present with undiagnosed conditions or conditions not listed on the questionnaire during the incarceration period.

Third, the admission to CFs is a stressful process, which can be a bias in the instrument’s application, as inmates can deny having a pathology or, on the contrary, declare having diseases to obtain benefits within the CF.

A further limitation is that a control group was not used. This was because all of the COs were trained in this region, and formulation of a control group would have necessitated expansion of the survey to another area of the state, which was not feasible due to the distances and costs involved.

Although encouraging, our findings still require validation before being recommended for implementation at the national level, as differences related to the physical structure, working process and the number of professionals in Brazilian CFs can hinder the application of the questionnaire during the admission process (Assis, 2007; Adolphi Júnior *et al.*, 2010).

Finally, these data should be revalidated in light of the National Policy on healthcare for People Deprived of Liberty, which recommends structuring CF health services as healthcare network centers across the Brazilian territory (Ministry of Health, Brazil, 2014).



Mostly, the data show that structuring protocols involving COs is feasible, and can become a paramount strategy for avoiding health-related unscheduled transfers after the quick admission process of inmates.

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