

Third Monitoring Report

US Department of Justice v. Erie County New York

This report reviews the status of medical program conditions at the time of the Third Monitoring visit, which took place November 26-November 30, 2012.

B. Medical Care

1. Policies and Procedures

Compliance Status: Substantial compliance-drafting of policies; Partial compliance-implementation of policies.

Findings

As indicated previously, the program has a fairly comprehensive set of policies and procedures which have been reviewed and approved by the Monitor. With regard to implementation, especially the reconstruction of the nursing staff but also changeover in the primary care clinician staff has resulted in significant inconsistencies in compliance with the policies and procedures. In our review of records, we identified problems in the areas of access to care, chronic disease, emergency services and follow up on scheduled and unscheduled offsite services. These inconsistencies with policy and procedure are not surprising given the turnover in staff, due partly to an effort to develop a committed in-house staffing complement. With the addition of the new Director of Nursing who begins in the month of December, we anticipate substantial improvements in implementation of policies at the time of our next visit.

Recommendation

1. Staff should receive training on the policies and procedures, area by area and then the QI program should monitor compliance.

2. Medical Autonomy

Compliance Status: Substantial compliance.

Findings

This area remains in substantial compliance as a result of the excellent working relationship between the Medical Director and custody leadership of the jail. As issues develop, the leaders of their respective teams work collegially to address each of their concerns and ultimately, satisfactory resolution does occur.

Recommendation: None.

3. Privacy

Compliance Status: Substantial compliance.

Findings

With the change in the intake processing and the absence of receipt of pre-arraignment males, the current procedure in the booking area is that the medical screen begins in a private area which is appropriate for a confidential service to be provided. There are two available rooms, both of which may be used during high volume periods and each affords appropriate privacy. We observed the intake process and confirmed that privacy is protected. Additionally, we again looked at the medical assessment rooms on the pods in the newer part of the jail. These rooms also are appropriately designed and equipped, and do afford reasonable privacy. They are currently not utilized by nursing staff but are utilized by clinician staff. With regard to the old section of the jail, there are interview rooms which do afford privacy but are not equipped for a clinician or a nurse to perform a health care assessment. These rooms may be utilized for a nursing face-to-face triage as part of the sick call process. If these rooms can be appropriately equipped they could be utilized for health care assessments.

Recommendation

1. Determine whether the interview rooms in the older section of the jail can be equipped so that they can accommodate health care assessments or whether, if this is not possible, they can be utilized for a nursing face-to-face triage.

4. Training of Custody Staff

Compliance Status: Substantial compliance.

Findings

We again reviewed the database utilized to track the required training with regard to medical issues, mental health issues including suicide prevention, sexual abuse training, supervision of inmates with serious medical needs, identifying signs and symptoms of drug and alcohol withdrawal, confidentiality as well as CPR and first aid. The sexual abuse training had been performed approximately 12 months earlier and was in the process of being completed in this annual cycle. All other training had been completed. Clearly well over 90% of the officers have received all of the required training.

Recommendation None.

5. Management of Health Records

Compliance Status: Partial compliance.

Findings

There has been significant progress with regard to the management of health records. The problem of lack of access to inactive files, especially on weekends, has been resolved, with staff now available to retrieve records seven days a week. In addition, there has been an effort to improve the timeliness of filing both for active and inactive records. We did not have the opportunity to go through the active and inactive files to determine the effectiveness of this effort. In addition, we are told that clerical staff are now servicing clinicians independent of their particular health care field. We also observed that a majority of the records we reviewed contained both a problem list and on the same document a listing of medications. This is a significant advance and reflects both training and effort on the part of the staff. However, the problem lists contained only medical problems; thus, the mental health program was not participating in the utilization of the problem list and the medication list. Although the problem list form does include a place for mental health diagnoses and psychiatric history, in the records we reviewed of patients with mental illnesses, these sections were not utilized. This is not consistent with the goal of the program or of this Agreement that there be a unified medical record. Thus, the status despite progress remains in partial compliance. There has been some activity working toward the implementation of an electronic record and several of these problems clearly could be resolved with the implementation of an electronic record.

Since October 15 the Medical Director has instructed the clinicians to utilize a specific documentation mnemonic to insure that each encounter includes the required information. This mnemonic is O for outcomes of visit, F for follow up, I for any infection referrals, R for any registrations and M for medical management. This has improved the quality of the documentation. We also discussed setting up processes that enable clinicians to better utilize available information; that is, when chronic care encounters occur there should be available a copy of the active medication administration record, both for medical and mental health, as well as copies of monitoring data, such as fingersticks or blood pressures, that would enable the clinician to use that data to better assess the health status of the patient.

Recommendations

1. Work on implementing the problem list and medication list in the mental health section so that the record becomes more unified.
2. Continue efforts to pursue an electronic medical record that should help resolve several of the outstanding issues.
3. Make available for medical and mental health chronic care visits a copy of the active MAR and any monitoring data.

6. Medication Administration

Compliance Status: Partial compliance.

Findings

We observed both a morning and evening medication administration process at the holding center. In each medication pass, both morning and evening, we reviewed the administration as it occurred in both the old jail housing units and the newer jail housing units. Although it is our perception that improvement has occurred, we still identified some problems and discussed these with a member of the nursing leadership team. Most importantly, when the nurses perform the medication administration service there are a sequence of steps that they must perform for each patient. What we observed was that intermittently they might skip one or more of these required steps, including the documentation of the administration. We suggested development of a card for each nurse performing medication administration services that would list the sequence of steps so that they would ultimately develop a rhythm that insured that they perform all steps for each patient. We also observed, in some housing units, that rather than the nurse determining at the end of the medication administration service that there were some medication administration records which had not yet been utilized and the patient had not come forward to the nurse, officers in the housing unit would instead announce "last call" like you might hear in a tavern. Right now only the nurse should know if there are any medication administration records that have yet to be addressed. We discussed with custody that in many facilities the pharmacy each day provides for each housing unit for both the nurse and custody a list of patients in that housing unit on medications. This would allow both the nurse and the officer to know who had presented themselves and who had not, because as they presented themselves the name would be checked off the list. In any event, it is the responsibility of the nurse to know who has not presented themselves and to request of the officer that the patient be contacted so that they are able to either receive the ordered medication or refuse it. In the pod housing units, we observed that at the end of the medication administration there were still several medication administration records that had not been utilized. We learned that this was due to the fact that several of the patients who should have received medications were out to recreation. We discussed with custody the need to coordinate the timing of the medication administration so that there is no conflict with recreation. Currently, when there is such a conflict, the nurse has to return to the housing unit after the recreation has been completed in order to complete the medication administration. This is clearly very inefficient.

We learned that for patients leaving the jail, instead of posting a flyer outside the window where they receive their property, a handout had been developed which not only has information about where to obtain the discharge medications but also information regarding patients who were receiving detoxification treatment, as well as information regarding medical record requests and tuberculosis testing. Unfortunately, when we first came to the window and requested the information record we were told that it did not exist. This was corrected ultimately and is based on an inexplicable decision by staff working at the window. Presumably this will be intermittently monitored.

Another problem we identified was that nurses are not referring patients to clinicians when they refuse medications consistently. The policy requires that when three medications are refused sequentially, or a significant number in a week, the patient is to be given an appointment with the clinician. We

observed a patient who was receiving medication for his diabetes, but had been refusing his evening dose. He indicated that because the order to perform finger sticks had been discontinued he was anxious that without a finger stick his sugar might be too low for him to be taking the medication, which would only drive the sugar lower. He had refused consistently over the month and there was no referral. He also indicated that he had requested on two occasions through a paper request to see the clinician, but nothing had happened. This is a very good example of why it is important for patients who are refusing medications consistently to be referred to the clinician automatically.

We reviewed the data with regard to medication errors and observed that most recently the error rate was about 3.5%. We indicated that the initial target should be a rate of less than 1%. This error rate is mostly a reflection of failure to document either administration or refusal for given doses for given patients. This is a reflection of the fact that nurses are probably forgetting the documentation step when they are administering the medications.

Recommendations

1. Develop a list of the steps that the nurse must perform for each patient medication administration and make this available so that the sequence can be observed by nursing supervisors.
2. The nurse must determine at the end of each medication administration which patients have not stepped forward and need to be contacted by the officer.
3. The timing of the medication administration for each housing unit should be coordinated with custody so that all of the patients, with the exception of those out to court for whom a separate arrangement is made, are available for the medication administration.
4. Intermittently monitor the availability of the discharge medical information sheet to be given to patients upon release.
5. Continue to monitor medication errors by reviewing MARs of patients on multiple medications.
6. Also monitor for whether consistent refusal results in a referral to the clinician to discuss the treatment plan.
7. Perform studies on the timeliness of receipt of medications from time of order at intake.
8. Perform studies of the timeliness from order of medications not at intake to receipt by the patient.

7. Access to Care

Compliance Status: Partial compliance.

Findings

Both at the Erie County Holding Center and Erie County Correctional Facility studies have been performed which document that about 80% of requests are seen within two days of receipt. At the

holding center the triaging nurse refers patients usually to the clinician, but where the case seems to be non-complicated they may go directly to a registered nurse. At the correctional facility, each morning the clinician and the nurse discuss which patients should be seen by which discipline, either an advanced level provider or a registered nurse. Sick call slips are collected daily at both facilities and paper triage also by an RN at each facility. One of the problems we identified which results in a compliance status of partial compliance is that both clinicians and nurses sometimes fail to address the complaints documented on the paper request. This is not unusual. Clinicians if taking an urgent care center approach, may say something like, "What is your problem today?" The patient therefore may respond by whatever symptom has been most recent. All encounters by both clinicians and nurses must begin with the assessor questioning the symptoms documented on the health service request. Once those are addressed, any other issues may be also addressed. It is unacceptable to begin the encounter in a completely open-ended fashion when in fact in the record there is a description of one or more specific symptoms. To use the open-ended approach merely manufactures liability for both the patient and the County. We also did identify that of the roughly 20% of patients who were not seen within two days, there may be problems in that some of them do not appear to be seen at all. It would be important to review the timelines for the outliers, insuring that the studies document whether the patients are remaining in the facilities. We of course found variability in the quality also of the professional performance with regard to the assessments. This should ultimately be addressed by the Medical Director, reviewing and providing feedback to the clinicians and the new Nursing Director reviewing and providing feedback to the registered nurses.

Recommendations

1. Review the timeliness and circumstances surrounding the 20% of requests that are not addressed within two days.
2. Insure that the professional performance review monitors whether all symptoms described on the paper request have in fact been addressed during the encounter.

8. Emergency Care

Compliance Status: Partial compliance.

Findings

The emergency response (man down) tends to be handled quite well. Assessments seem to be both timely and appropriate and where indicated patients are sent out timely. The policy with regard to urgent care services requires a log be maintained at each facility that documents the patient name, date and time and presenting complaint and ultimately the disposition. This log ceased to be maintained a few months ago at the holding center. This is a requirement of the policy and it is critically useful for supervisory staff to review selected records and provide feedback to clinicians. Additionally, for all unscheduled send outs, there should be a nursing note that briefly describes the clinical circumstances and the discussion with the authorizing clinician who ordered the send out. In our record review this

did not always occur. Additionally, patients are to be seen by a nurse at the time of return and in that encounter the nurse also determines whether the required paperwork from the offsite service is available. If it is not available it is the obligation of that nurse to take steps to retrieve it. The patient is then supposed to be seen by the primary care clinician within 24 hours. That latter step is usually occurring, although not always. The nursing note on return is occurring even less frequently. This is an area that clearly requires addressing. Both training for the nurses and then monitoring by the quality improvement program will facilitate compliance with these items.

Recommendations

1. Insure that an urgent care log is in fact conscientiously maintained at each facility.
2. This urgent care log should be reviewed on a regular basis by both the Medical Director and Director of Nursing in order to provide feedback to clinicians and nurses with regard to professional performance.
3. Training should be provided to the nursing staff with regard to their obligations regarding documentation both on send out of unscheduled services and on return.
4. The QI program should also monitor the nursing performance with regard to these services.
5. The QI program must also monitor the clinician performance with regard to initial assessments and follow up visits after unscheduled services are provided.

9. Follow Up Care

Compliance Status: Partial compliance.

Findings

This item refers to follow up visits for both unscheduled and scheduled offsite services. However, we discussed follow up on unscheduled services with regard to number eight. So on this item we will focus on scheduled offsite services. With regard to this process, when patients are sent offsite for either consultations or procedures any documentation should be returned to nursing staff. It is important that nursing staff are aware of what offsite services have been provided and whether when the patient is returned the patient is accompanied by a report of the services. Ultimately, either a nurse or the scheduler must insure that the reports are available and insure that there is a follow up visit with the primary care clinician within a week of the retrieval of the report. It was common in the records we reviewed for these follow up visits not to be located. The process has to insure that not only are the visits scheduled timely but also that the paperwork is then retrieved timely and there is a timely follow up encounter with a primary care clinician in which there is documentation of a discussion of both the findings and plan. A program that consistently accomplishes this substantially reduces liability, both to the patient and to the County.

Recommendations

1. Institute a process that insures that scheduled offsite service reports are retrieved and reviewed by the clinician timely.
2. Institute a process whereby the patient is seen within two weeks of the offsite service and the findings and plan are documented as having been discussed.
3. Monitor this process through your QI program.

10. Chronic Disease

Compliance Status: Partial compliance.

Findings

Although there is a chronic disease program at both facilities, performance by the clinicians is not consistent with either local policy or national guidelines. One problem we identified was despite a policy requirement that any patient on chronic medications must have a history and physical within three to five days of entry, this was commonly not occurring. Secondly, patients who entered with a chronic disease were not having their initial baseline chronic disease visit scheduled within the first 30 days. Instead, some patients were scheduled to have their first chronic disease visit more than 90 days after entry. Thirdly, follow up visits were not consistently scheduled based on how well controlled the patient's diseases were. The standard requires that follow up visits of patients in poor control occur more rapidly than patients in good control. In addition, clinicians were not insuring that baseline lab data was available for the initial chronic disease visit. This is also a policy requirement which enables the clinician to appropriately assess the degree of control. The current process of creating the database for tracking patients with chronic diseases is backlogged by at least three to four days, thus precluding an up-to-date registry of all the patients who have chronic diseases. We did identify a patient who, despite entering the system in June and despite having been seen on several occasions as a result of sick call requests, had still not had a baseline visit addressing her hypertension or diabetes as of November. Clearly, this system can and will be tightened up substantially. Part of the problem we ascribed to the turnover of clinician staff and some of the clinicians are quite new to the program. This clearly is a challenge for the Medical Director. We also found treatment regimens which utilized medications that resulted in multiple times per day dosing, which creates extra resource demands in a correctional setting. Simplifying regimens, particularly with hypertension where there are so many options, should be part of the treatment planning. We would expect, assuming that the clinician staff is stable, substantial progress will be made in this area by the time of our next visit.

Recommendations

1. Work on improving the completeness of the chronic disease registry.
2. During the individual clinical performance reviews, identify patterns of deficiencies which could be used in group training.

3. Consider a procedure that requires the advanced level clinicians to refer any patient whose disease is poorly controlled and does not improve at the follow up visit to the Medical Director. This should enable the Medical Director to be involved with the sickest patients.
4. Insure that the first database visit occurs no later than Day 30 after intake for patients who are well controlled and significantly earlier for patients who are less well controlled.

11. Dental Care

Compliance Status: Partial compliance.

Findings

The dental program has been handicapped by the fact that since the dentists have been scheduled to be at the holding center and at the correctional facility on Tuesdays and Thursdays, the one dental assistant is only able to assist one dentist at a time. We are told that there are plans to change the dental schedule so that at each site there will be three days of dentist, two of which will include a dental assistant. Our understanding is on Mondays the holding center will have a dentist and dental assistant. On Tuesdays, the correctional facility will have a dentist plus a dental assistant and the holding center will just have a dentist. On Wednesdays there will a dentist and dental assistant at the correctional facility and on Thursdays there will be a dentist and dental assistant at the holding center but just a dentist at the correctional facility. Finally, every other Friday there will be a dentist with an assistant at the holding center and every other Saturday there will be a dentist with an assistant at the correctional facility. We are pleased to report that the dentists have recently begun to perform restorations. We have indicated that the ratio of restorations to extractions should be monitored on a monthly basis. The standard of practice in the community is that when the dentition is in relatively good shape, a restoration is the appropriate plan rather than an extraction. Historically, the Erie County dental program almost exclusively provided extractions independent of the maintenance of the dentition. Fortunately this is changing. We are encouraging the monitoring of these ratios on a regular basis.

Recommendations

1. Monitor the timeliness and appropriateness of nursing response to dental pain with the new schedule, nursing may be less involved in responding to dental pain as dentists will be onsite more frequently.
2. Continue to monitor the ratio of restorations to extractions.
3. The QI committee should monitor the rate of post-extraction infections.
4. The dental program should report to the infection control coordinator on a quarterly basis sterilization monitoring data.

12. Care for Pregnant Prisoners

Compliance Status: Substantial compliance.

Findings

Most of the pregnant females are housed at the correctional facility. We reviewed records there and found that patients are being seen regularly by OB/GYN programs and are being monitored in a manner consistent with American College of Obstetrics and Gynecology guidelines. The full record of each encounter is now present in the Erie County record and any recommendations from the OB/GYN program are carried out timely. The County is to be commended for improving this area.

Recommendation None.

13. Dietary Allowances and Food Service

Compliance Status: Partial compliance.

Findings

This area has slipped back to partial compliance because we were unaware of the lack of availability of a dietary consultant to advise the chief cook at each facility. The issue came up when we came across a type 1 diabetic and although there were some behavioral issues with this patient, nonetheless this is the type of fragile patient for whom such consultation needs to be available so that appropriate substitutions can be made. It is our understanding that current efforts are underway to acquire a dietitian consultant who could serve both facilities. Once this is in place this area could return to substantial compliance. We also learned that although there has been a reduction in what we characterize as food preference diets, some of these are still being ordered. This is being monitored by the Medical Director and hopefully these will be eliminated before our next visit. We continue to recommend the consideration of a heart healthy diet which we feel would greatly reduce the requirement for special diets. We understand that the dietician consultant could be of immense help in providing guidance for specifications on such a diet.

Recommendations

1. Acquire the services of a dietician consultant.
2. Consider adopting a heart healthy master menu.

14. Health Screening of Food Service Workers

Compliance Status: Substantial compliance.

Findings

As indicated previously, food services workers at the holding center are not involved in food preparation. They are only involved in serving and cleaning. At the correctional facility, food service workers are involved in food preparation. In both facilities, there is a daily effort to screen out individuals who could potentially spread food borne illnesses. This effort consists of insuring that workers are not suffering from any gastrointestinal disease and have no open lesions on their arms or

hands. In both facilities there is a prior medical clearance that is performed to insure that eligible workers are physically and mentally capable of working in the assigned area. The current methods for screening are satisfactory.

Recommendation None.

15. Treatment and Management of Communicable Diseases

Compliance Status: Partial compliance.

Findings

Although there is monitoring of TB control and especially the rate at which eligible and available new entries to the jail are screened, the communicable disease program needs to be much broader. We are encouraged that the new Director of Nursing has superb credentials with regard to infection control and in fact has run such programs at hospitals during her career. Any correctional communicable disease program, as indicated earlier, must focus not only on TB control but also tracking, monitoring and preventing skin infections, identifying and treating sexually transmitted diseases, monitoring dental sterilization processes and post-operative infections and insuring that any reportable diseases are appropriately reported. Additionally, alertness for outbreaks such as food borne illnesses or other communicable diseases must be addressed. Working through the health department is a huge advantage for this program.

Recommendations

1. Draft a position description for the communicable disease/infection control nurse and send it to me for my review.
2. Although the infection control nurse should collect data monthly, she should summarize it on a quarterly basis for the quality improvement committee. Particular areas to be reported on include TB control and prevention, the tracking of skin infections including both presumptive and culture confirmed MRSA, the incidence of sexually transmitted diseases and the occurrence of reportable diseases along with a sterilization report.

16. Sexual Abuse

Compliance Status: Substantial compliance except for the training of medical staff.

Findings

We have reviewed investigative reports regarding allegations of sexual abuse since our last visit and one of these in fact was initially reported to a member of the health care staff. In each instance the required procedures were followed and the program appears to have handled the issue well. All of the correctional staff are in the process of being retrained and the mental health staff have also been trained. Because of the turnover in the medical staff, the sexual abuse training has not been completed

for a significant number of staff and on that basis there cannot be full substantial compliance until health care staff have been trained.

Recommendation

1. Provide the training to all medical staff with regard to the sexual abuse policy that we have reviewed.

17. Quality Management

Compliance Status: Partial compliance.

Findings

Despite the turnover of staff and the absence of a Quality Improvement Coordinator, there has been as reviewed by the Monitor a substantial amount of data collected regarding the performance of the program. This data includes timeliness to be seen in sick call after receipt of health service requests, both at the holding center and at Alden, data on the occurrence of booking, a study of the timeliness of filing within the medical record, a study of completion of detoxification monitoring and studies done on timeliness of initial physical exam as well as TB skin testing. The program is to be commended for these efforts in the face of competing demands as the program is reconstructed. It is our understanding that there is a proposal by the Director of Correctional Health Services for a Quality Improvement Coordinator position. This Monitor is comfortable stating that without that resource the probability of achieving substantial compliance on all items and most especially items 17 and 18 is greatly reduced. This is a critical resource that will help provide the final piece of the infrastructure that has yet to be put in place. As you have read this report, in many of the sections the recommendations entail quality improvement monitoring in order to identify opportunities for improvement. Let me be clear: monitoring alone without data analysis including understanding the underlying contributing factors to performance that is not adequate and then from that understanding targeting improvement strategies to address those factors is what the quality management program anticipates and requires. This takes energy not just from the leadership team but also from as many line staff as is possible. In this report we have identified several areas where there are opportunities for improvement either with regard to professional performance or with regard to process improvement. Those improvements will not occur without a viable and robust quality management program. It is apparent to this Monitor that the County is assembling a very talented leadership team that is quite capable of achieving the goals of this Agreement. However, unless the quality management program is actualized, achieving substantial compliance is not very likely. Throughout this report the recommendations include activities to be performed through the quality management program. I will not relist those items but they should form the basis for some initial activities to be performed through the quality management program.

Recommendations

1. Bring on board a quality management coordinator to facilitate the development of this critical program.

18. Review of Clinical Care by Responsible Physician

Compliance Status: Partial compliance.

Findings

We have reviewed the reviews performed by the Medical Director of each of the clinician staff. He is reviewing five records per provider per quarter randomly selected. We discussed the advisability of rather than randomly selecting records, an effort should be made to identify records of higher risk patients. This can be done through chronic disease lists, particularly patients with multiple chronic diseases, including patients who are elderly as well as patients sent offsite for either scheduled or unscheduled services. The more complex the patient is the more material for review with the staff and more opportunities for educating the staff. Clearly there is so much for the Medical Director to do with his staff, including the chronic care program, sick call performance, urgent care performance, follow up of offsite services and responses to emergencies. Particularly given the staff turnover, this is going to take some time. We also understand that the Medical Director himself has clinical obligations which in part are impacted by the availability of a full staffing compliment and we do understand that clinical mandates supersede mentoring mandates. On the other hand, we have seen the Medical Director interact with his staff and we have found his approach to be extremely constructive and collegial, even in the face of chagrin at the observed level of performance. With the required positions filled we are confident that this can become a high performing group.

Recommendations

1. Make an effort to select cases for review with each clinician that are by design more complex or high risk.

III. Protection from Harm

E. Training of Officers with Regard to Sexual Abuse and Policy on Handling Sexual Abuse

Compliance Status: Substantial compliance.

Findings

Both the policy and the training are consistent with an assessment of substantial compliance.

Recommendation None.

I. Training of Medical and Mental Health Staff

Compliance Status: Partial compliance.

Findings

Although the mental health staff have completed their training, the medical staff due to turnover have not yet completed their training.

Recommendation

1. Complete the training with regard to sexual abuse policy for all medical staff.

J. Suicide Prevention Program

e. Privacy

Compliance Status: Substantial compliance.

Findings

See number 3 under Medical Care section.

Recommendation None.

f. Assessment of Inmates in Detoxification

Compliance Status: Partial compliance.

Findings

When CIWA screens are started in the booking area, compliance tends to be quite good. However, when the detox screening is not started in the booking area nurses have not been initiating detoxification screening the leadership of nursing is aware of this and this will be addressed, thus the partial compliance.

D. Training of Officer Staff with Regard to Suicide Prevention Training

Compliance Status: Substantial compliance.

Findings

See number 4 under Medical Care section.

3. Detoxification Training Program

Compliance Status: Partial compliance.

Findings

A significant number of the medical staff due to turnover have not had this training.

Recommendation

1. Where they are in partial compliance in each instance provide the training.

Respectfully submitted,

R. Shansky, MD
Medical Monitor

RS/kh