Regione Lazio
Azienda Unità Sanitaria Locale Viterbo
Dipartimento di Prevenzione
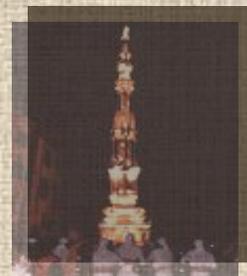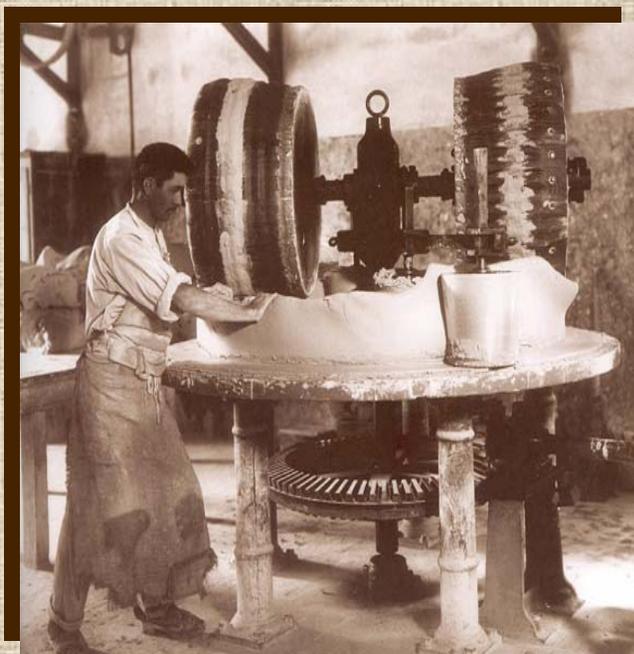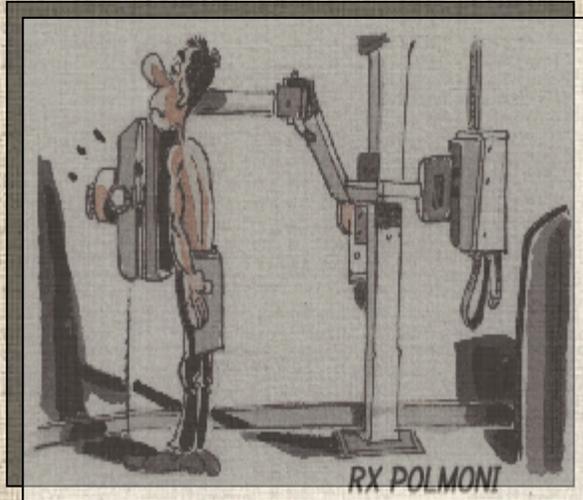**U.o.c. Prevenzione Igiene e Sicurezza nei Luoghi di Lavoro**

"**La formazione dei B readers: l'esperienza italiana di collaborazione con il NIOSH.**

I controlli di qualità delle radiografie eseguite in gruppi di lavoratori a rischio:

l'esperienza della AUSL di Viterbo"

Augusto Quercia

Modena, 8 ottobre 2008

RX POLMONI

1.La formazione dei B-readers

GUIDELINES FOR THE USE OF THE ILO INTERNATIONAL CLASSIFICATION OF RADIOGRAPHS OF PNEUMOCONIOSES

REVISED EDITION 2000

ILO Guidelines

- larga diffusione

- consenso unanime

In Italia
- applicazione non costante

- applicazione parziale

The NIOSH B Reader Certification Program

An Update Report

Gregory R. Wagner, MD
Michael D. Attfield, PhD
Richard D. Kennedy, MS
John E. Parker, MD

  Physicians trained in the use of the International Labour Office system for classification of radiographs of pneumoconioses who pass a competence test administered by the National Institute for Occupational Safety and Health are designated as B readers. The current certification and recertification examinations for qualification under the NIOSH B reader program are described. Details of the rationale and format of each examination are given, and information on candidates' scores provided for the years 1987–1990.

Corso NIOSH

✓ **Linee guida ILO**

✓ **Esercitazione sul syllabus**

✓ **scheda di lettura**

✓ **Esame certificazione/ricertificazione**

NIOSH Reading Sheet

Page 1 (left form)

1544192534

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE

OMB No.: 0920-0020

DATE OF RADIOGRAPH
MONTH   DAY   YEAR

CENTERS FOR DISEASE CONTROL & PREVENTION
National Institute for Occupational Safety and Health
Federal Mine Safety and Health Act of 1977
Medical Examination Program

Coal Workers' Health Surveillance Program
NIOSH
PO Box 4258
Morgantown, West Virginia 26504

WORKER'S Social Security Number

ROENTGENOGRAPHIC INTERPRETATION

TYPE OF READING
A   B   P

FACILITY IDENTIFICATION

Note: Please record your interpretation of a single film by placing an "x" in the appropriate boxes on this form.

I. FILM QUALITY
1 2 3 U/R
(If not Grade 1, mark all boxes that apply)

☐ Overexposed (dark)   ☐ Improper position   ☐ Underinflation
☐ Underexposed (light) ☐ Poor contrast   ☐ Mottle
☐ Artifacts   ☐ Poor processing   ☐ Other (please specify)

2A. ANY PARENCHYMAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS?
YES ☐ Complete Sections 2B and 2C
NO ☐ Proceed to Section 3A

2B. SMALL OPACITIES
a. SHAPE/SIZE
PRIMARY: p s / q t / r u
SECONDARY: p s / q t / r u
b. ZONES R L
UPPER / MIDDLE / LOWER
c. PROFUSION
0/- 0/0 0/1
1/0 1/1 1/2
2/1 2/2 2/3
3/2 3/3 3/+

2C. LARGE OPACITIES
SIZE O A B C
Proceed to Section 3A

3A. ANY PLEURAL ABNORMALITIES CONSISTENT WITH PNEUMOCONIOSIS?
YES ☐ Complete Sections 3B, 3C
NO ☐ Proceed to Section 4A

3B. PLEURAL PLAQUES (mark site, calcification, extent, and width)

Chest wall	Site	Calcification	Extent (chest wall; combined for in profile and face on)	Width (in profile only) (3mm minimum width required)
In profile	O R L	O R L	Up to 1/4 of lateral chest wall = 1	3 to 5 mm = a
Face on	O R L	O R L	1/4 to 1/2 of lateral chest wall = 2	5 to 10 mm = b
Diaphragm	O R L	O R L	> 1/2 of lateral chest wall = 3	> 10 mm = c
Other site(s)	O R L	O R L	O R 1 2 3 / O L 1 2 3	O R a b c / O L a b c

3C. COSTOPHRENIC ANGLE OBLITERATION
R L Proceed to Section 3D
NO ☐ Proceed to Section 4A

3D. DIFFUSE PLEURAL THICKENING (mark site, calcification, extent, and width)

Chest wall	Site	Calcification	Extent (chest wall; combined for in profile and face on)	Width (in profile only) (3mm minimum width required)
In profile	O R L	O R L	Up to 1/4 of lateral chest wall = 1	3 to 5 mm = a
Face on	O R L	O R L	1/4 to 1/2 of lateral chest wall = 2	5 to 10 mm = b
			> 1/2 of lateral chest wall = 3	> 10 mm = c
			O R 1 2 3 / O L 1 2 3	O R a b c / O L a b c

4A. ANY OTHER ABNORMALITIES?
YES ☐ Complete Sections 4B, 4C, 4D, 4E
NO ☐ Proceed to Section 5

4B. OTHER SYMBOLS (OBLIGATORY)
aa at ax bu ca cg cn co cp cv di ef em es fr hi ho id ih kl me pa pb pi px ra rp tb
OD If other diseases or significant abnormalities, **findings must be recorded on reverse.** (section 4C/4D)
Date Physician or Worker notified?
MONTH DAY YEAR

4E. Should worker see personal physician because of findings in section 4? YES ☐ NO ☐
Proceed to Section 5

5. PHYSICIAN'S Social Security Number*
*Furnishing your social security number is voluntary. Your refusal to provide this number will not affect your right to participate in this program.

FILM READER'S INITIALS

DATE OF READING
MONTH DAY YEAR

LAST NAME - STREET ADDRESS

CITY   STATE   ZIP CODE

CDC/NIOSH (M) 2.8
REV. 6/02

Page 2 (right form)

4961192530

4C. MARK ALL BOXES THAT APPLY: (Use of this list is intended to reduce handwritten comments and is optional)

Abnormalities of the Diaphragm
☐ Eventration
☐ Hiatal hernia

Airway Disorders
☐ Bronchovascular markings, heavy or increased
☐ Hyperinflation

Bony Abnormalities
☐ Bony chest cage abnormality
☐ Fracture, healed (non-rib)
☐ Fracture, not healed (non-rib)
☐ Scoliosis
☐ Vertebral column abnormality

Lung Parenchymal Abnormalities
☐ Azygos lobe
☐ Density, lung
☐ Infiltrate
☐ Nodule, nodular lesion

Miscellaneous Abnormalities
☐ Foreign body
☐ Post-surgical changes/sternal wire
☐ Cyst

Vascular Disorders
☐ Aorta, anomaly of
☐ Vascular abnormality

4D. OTHER COMMENTS

Public reporting burden of this collection of information is estimated to average 3 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection information, including suggestions for reducing this burden to CDC, Project Clearance Officer, 1600 Clifton Road, MS E-11, Atlanta, GA 30333, ATTN: PRA (09020-0020). Do not send the completed form to this address.

Corsi di certificazione e ricertificazione
e B-readers certificati sul totale dei partecipanti

Corsi	N°certificaz.	%	N° ricertificaz.	%
1998	9/9	100	/	/
2002	6/12	50	4/7	57
2004	5/12	41	/	/
2006	10/13	77	9/10	90
2008	?/12	-	?/2	-

B Readers per specializzazione ed anzianità di certificazione

Corsi	Radiologi	Medici del lavoro
Certificazione	9	6
1ª Ricertificazione	1	5
2ª Ricertificazione	2	1
Totale	12	12

DISTRIBUZIONE
GEOGRAFICA
B-READERS IN ITALIA

B-READERS: ATTIVITA' IN CORSO
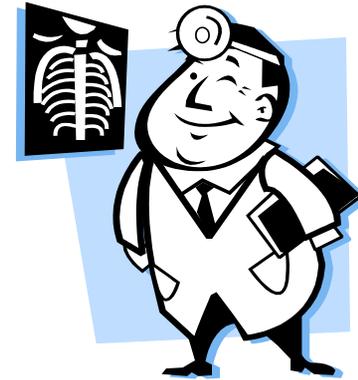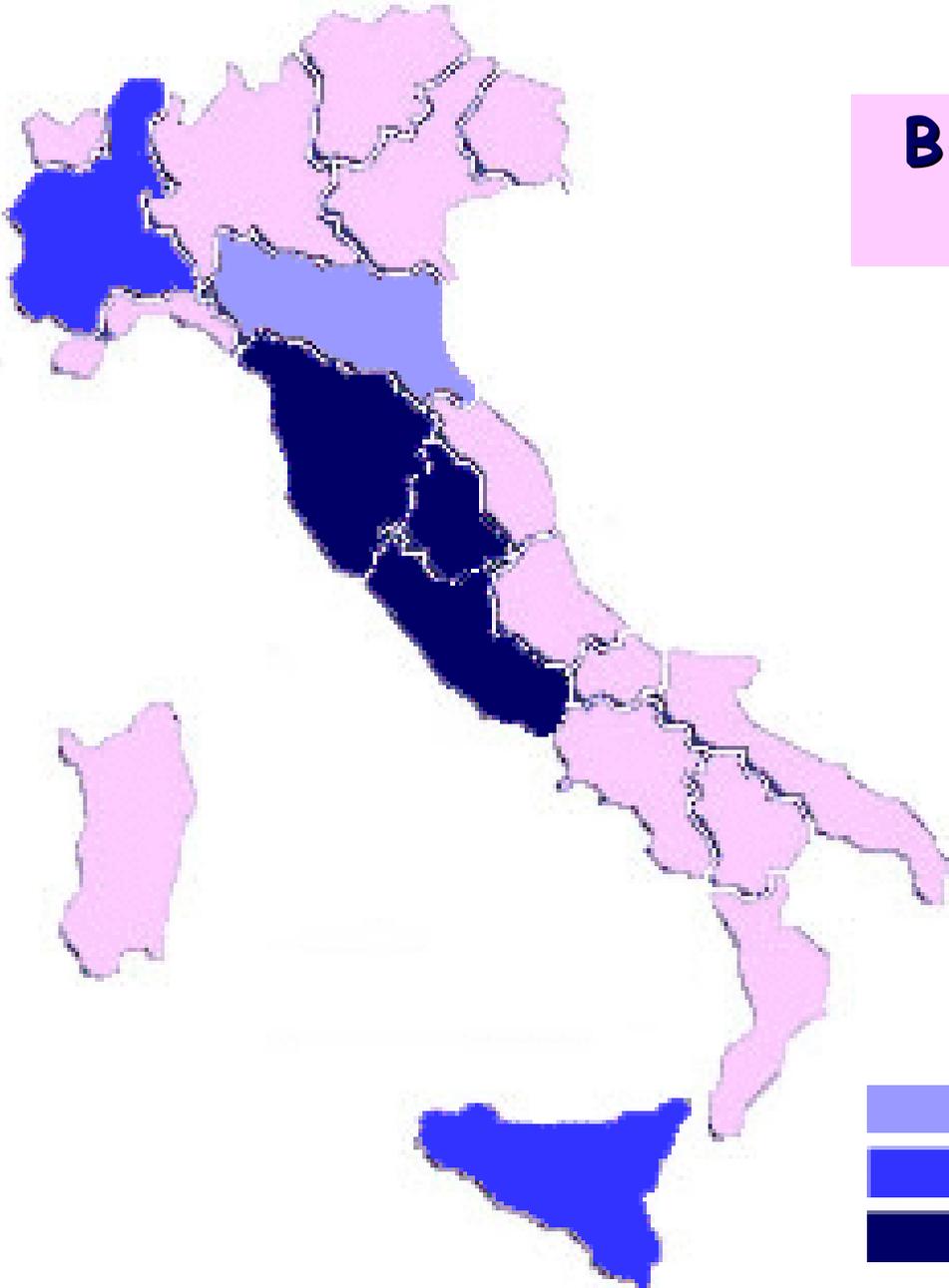
in progetto

lettori singoli

gruppi di lettori (doppio/triplo cieco)

2. I controlli di qualità: l'esperienza della AUSL di Viterbo

La Medicina del Lavoro

RIVISTA BIMESTRALE DI MEDICINA DEL LAVORO E IGIENE INDUSTRIALE
ITALIAN JOURNAL OF OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE

CONTIENE INDICE 2003

APPUNTI DI METODO

Controllo di qualità tecnica sui radiogrammi del torace effettuati per la sorveglianza sanitaria dei lavoratori esposti al rischio di pneumoconiosi: proposta di un metodo di *screening* qualitativo

GIOVANNA. MANZARI, E. VALENTI, F. D'EPIFANIO*, A. QUERCIA, E. CARDONA*

Dipartimento di Prevenzione – Servizio PISLL, ASL Viterbo
*Dipartimento Ospedaliero di Civita Castellana – UO Radiologia

SUMMARY

«*Technical quality control of chest radiographs performed for purpose of health control of workers exposed to pneumoconiosis risk: proposal of a qualitative screening method*». Background: *The necessity of a qualitative screening has arisen from the fact that good technical quality is of fundamental importance for evaluating initial pneumoconiosis, for reducing inter- and intra-reader variability, for effective secondary prevention and for forensic medicine purposes.* Objectives: *The authors report experience in use of a method to evaluate the quality of chest radiographs performed in health surveillance programs for workers at risk for development of pneumoconiosis.* Methods: *747 postero-anterior chest radiographs concerning employees of 21 ceramic factories in the Province of Viterbo were examined. A standardized pattern was created for this evaluation. The pattern considers the main factors that can influence the quality of chest radiographs and assigns points for each of them. That factors are: 1) reproduced image of the lung's vascular structure, chiefly in the peripheral portions; 2) reproduced image of heart border, aorta, diaphragm; 3) deep inspiration; 4) symmetric image of the chest; 5) position of the scapulae; 6) visualization of the costal-phrenic angles; 7) technical impairments.* Results: *The application of the method revealed that half of the chest radiographs examined had poor image quality for a suitable reading, in conformity with the ILO 1980 guidelines. The critical points are poor visualization of the lung's vascular structure due to overexposure or underexposure, technical impairments, non-correct scapulae position.* Conclusions: *The authors believe that the suggested method can be a useful instrument for self-testing the quality of chest radiographs performed in radiology centers and for the National Health Service to test the quality of chest radiographs performed in health surveillance programs.*

SCHEDA DI VALUTAZIONE QUALITATIVA DEI RADIOGRAMMI DEL TORACE IN POSTERO-ANTERIORE

DITTA _____ **LABORATORIO**_____

COGNOME _____ **NOME** _____

DATA NASCITA _____ **DATA RX** _____

	0	1	2	3	4	5	FRAZIONI
SOVRAESP./SOTTOESP. ERRATO RAPP. KV/mA							
SFUMATURA DA MOVIMENTO							
INSPIRAZIONE PROFONDA							
SIMMETRIA TORACE							
BORDI SCAPOLARI							
ANGOLI COSTO-FRENICI							
DIFETTI TECNICI							

PUNTEGGIO TOTALE: ☐

GIUDIZIO CONCLUSIVO: ☐ SUFFICIENTE

☐ INSUFFICIENTE

DATA _____   FIRMA DEI COMPILATORI

_____

_____

_____

Valutazione Rx mediante griglia: n. e % di esami sufficienti e insufficienti, punteggio medio, mediana e moda per singolo laboratorio

Lab.	n. Rx	Suff.		Insuff.		P. Medio	Mediana	Moda
		n.	(%)	n.	(%)			
1	511	164	(32)	347	(68)	4,5 ± 2,5	4	3
2	189	169	(89)	20	(11)	7,3 ± 1,5	7,5	8
3	29	23	(79)	6	(21)	6,4 ± 1,4	6,5	6
4	18	18	(100)	/	(/)	9,2 ± 0,6	9	9
Totale	747	374	(50,1)	373	(49,9)	5,4 ± 2,6	6	6

Analisi dei punti sottratti con applicazione della griglia

Aspetto esaminato	N. prove con sottraz. punti	%	Media punti sottratti	D.S.
Vis. Vasi/linee med.	664	89,5	2,1	1,1
Difetti tecnici	479	64,1	2,5	1,1
Pos. Scapole	387	52,2	1,2	0,5
Bordi cuore/diaframma	150	20,2	0,8	0,5
Simm. Campi polmonari	150	20,2	0,6	0,3
Angoli costo-frenici	106	14,3	0,9	0,4
Inspirazione profonda	81	10,9	0,8	0,3

Lab.	n. Rx	Suff. n.	Suff. (%)	Insuff. n.	Insuff. (%)
1	855	443	(52)	412	(48)
2	795	756	(95)	99	(5)
3	295	255	(86)	40	(14)
4	18	18	(100)	/	(/)
5	96	26	(27)	70	(73)
6	54	40	(74)	14	(26)
7	22	20	(99)	2	(1)
8	102	81	(9)	21	(21)
Totale	2237	1639	(77)	598	(23)

Valutazione Rx mediante griglia: n. e % di esami sufficienti e insufficienti, punteggio per singolo laboratorio

Qualità degli Rxt di lavoratori esposti a silice esaminati da B-readers
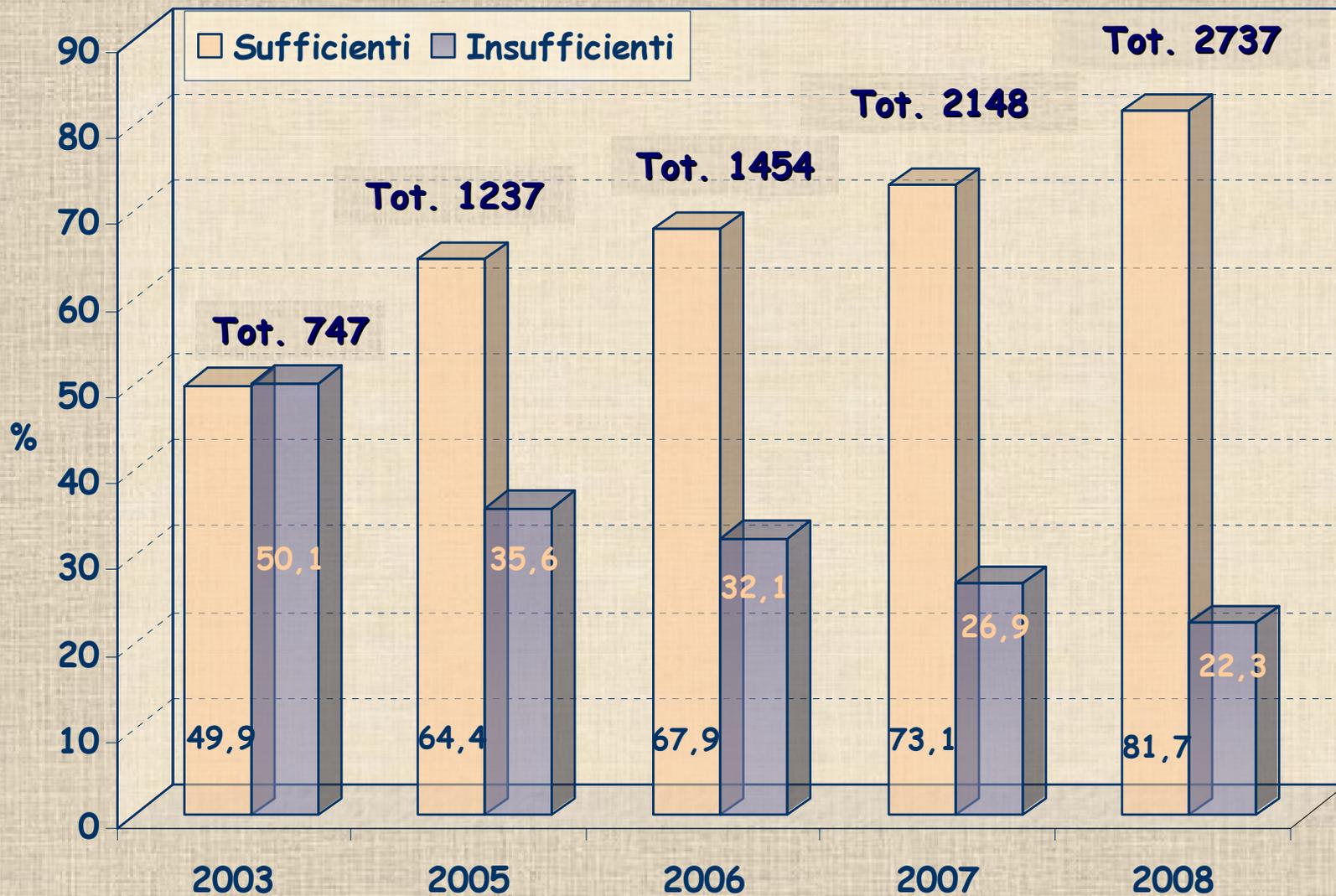
RADIOLOGIA OSPEDALE DI CIVITA CASTELLANA.
Qualità rx prima e dopo il corso NIOSH

	Suff.	Insuff.	Tot.
Pre '98	382	35 (8.4)	417
Post '98	83	0	83
	465	35	500

Confronto letture B-readers/Aziende in base alla profusione radiologica delle immagini (profusione ILO 0/0-0/1 =NEG; profusione ILO 1/0 o maggiore = POS. Anno 2008.

		AZIENDE		
		POS	NEG	
B rea ders	POS	28	30	58 (5.2%)
	NEG	7	1052	1059 (94.8%)
		35 (3.1%)	1082 (96.9%)	1117

Evidenze disponibili

- Elevata % Rx non leggibili

- necessità ed efficacia di azioni di controllo

- significativo n° casi "persi" (falsi negativi)

- utilità indagini epidemiologiche di confronto

Prospettive

✓ **Nuovi corsi**

✓ **Gruppi di lettura "regionali" (anche per i medici competenti)**

✓ **Attivazione indagine specifiche**

✓ **"Rete" dei B Readers**